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ORIGINAL ESSAYS.

ART. XXV.—*Some important points in the Treatment, Nursing and Management of patients suffering from Hepatic Disease.* By Surgeon W. STEWART, M. D., H. M.'s 21st Fusiliers.

SINCE the commencement of the Chloride of Ammonium treatment of hepatic diseases as advocated by me in the columns of this journal, numerous cases of hepatitis and of hepatic abscess have been published in illustration. I propose in this place giving a few cases of simple enlargement of the liver, so as to illustrate the special action of the medicine —the subject of my last paper.

In cases of congestion of the liver (simple enlargement) the *special* action is most marked. In cirrhosis on the contrary, and the chronic enlargement of the liver, so often met with in those who have resided long in India, the special symptoms of the drug are but slightly manifested, if at all; and this remark, I think, will be found to apply more particularly to cirrhosis.†

* Madras Journal of Medical Science for February and March 1872.

† I have had but little experience in the use of the drug in cirrhosis; but in the case of a female suffering from the disease, much comfort was afforded, and the fatal progress was apparently prolonged under the use of the medicine.

As this communication will probably be the last I may have an opportunity of making on this subject, as my Battalion is about to leave this country for England, I may be permitted to state generally the result of the treatment in the hospital of the 2-21st Fusiliers. It is now a little more than three years since the treatment was first commenced, and during that period the Chloride of Ammonium has been employed in the treatment of 153 cases of hepatic disease, as under :—

Hospital, 2-21st Fusiliers.

Disease.	Admitted.	Discharged.	Died.
Simple enlargement of the Liver ...	33	33	......
Hepatitis ...	104	104	......
Abscess of the Liver ...	16	16	......
Total ...	153	153	None.

The average annual number of deaths at head-quarters from abscess of the liver during the four preceding years (1865-68) was 6·75, the average annual number of hepatic cases for the same period being 59. Having shown the result of the treatment by Chloride of Ammonium, as compared with that formerly adopted in the hospital under my charge, I have now to point out what I conceive to be the chief reason why an equal measure of success has not been obtained in the practice of others: and first I would take leave to remark that from communications received from medical officers of my acquaintance serving at different stations throughout India, and from conversations with some of my friends who are in the habit of using the Chloride of Ammonium, it is quite evident that one of the essentials to success, viz.—*absolute rest in bed in the recumbent postuer, during the whole course of the disease,* is either entirely neglected or else not strictly enforced. In my pamphlet and other published papers, I dwelt as I thought fully and explicitly on this point, as one, without attention to which

all our efforts would be hopeless; and I pointed out the immediate danger to life from allowing weakly patients suffering from hepatic abscess to quit their beds, to sit up in chairs, go to the night stool, &c.

Since then, several instances have come to my knowledge of patients suffering from abscess of the liver who have met their death in this manner, either while sitting in the chair or on the night stool; or else, the fatal result has been brought about, if less suddenly, yet quite as certainly, from rupture of the abscess into the peritoneal cavity from the same cause, and in this latter case the circumstance is apt to be overlooked and not enquired into, unless the patient should think of mentioning it by alluding to something having "cracked" or "given way" in his side, while sitting up, moving about, or while on the night stool, &c.

But even in fatal cases in which the Chloride of Ammonium had been used without attention to this important rule, (a rule which I hold to be absolutely necessary for success), and in which the treatment had been commenced in time to admit of the probability of success being obtained, it has been observed by those who have communicated with me on the subject, that the progress to the fatal issue was smoothed and prolonged by the long-continued use of the Chloride of Ammonium, and the *post-mortem* examination of such cases has revealed the liver tissue surrounding the abscess cavity in a healthy state, of natural colour and consistence, free from congestion or other morbid appearance, and unlike that commonly found surrounding the cavities of hepatic abscesses.

With regard to the important rule of absolute rest in bed, the greatest difficulty will be experienced in getting all concerned to carry it out effectually; and nothing but unremitting care and attention on the part of the prescriber, and the medical subordinates and orderlies in charge of the patient, will suffice to effect it; for, as a rule, patients suffering from hepatitis or the graver forms of hepatic disease, are peevish and wayward, and in this, as in matters of diet, &c., the greatest difficulty is experienced in their management.

In serious cases I am in the habit of having *two* men daily from the ranks to take it turn about (every two hours) to remain with the patient; and written instructions are read to these men when coming on duty by the Hospital Serjeant, in which, the necessity of preventing the patient quitting his bed, or even moving suddenly in it for any

purpose whatever, is enforced. The patient is not even permitted to quit his bed for the purpose of changing sheets or having the bed made; but when such changes are necessary, another cot is provided, with clean bedding, &c., on which he is gently moved in the horizontal position by the attendant, a bed-pan and urinal being kept *constantly at hand* for his use.

In all my remarks on the treatment of hepatitis and hepatic abscess hitherto made, I have taken it for granted that—with all the confused difficulties at times surrounding the diagnosis—the latter has been made sufficiently early to justify a reasonable prospect of success from the treatment; but that the further element for success is oftentimes wanting, every one who has had much Indian experience will be free to admit. In the Departmental blue book for 1869, there is a very instructive paper by Dr. Adams, on the mistakes liable to be made in the diagnosis of hepatic disease, which is well worth careful perusal. Some time ago two cases, exemplifying the liability to error in the early and remediable stage of hepatic disease, came to my knowledge. Both occurred in the persons of natives, and in both, the patients were supposed to be suffering from Intermittent fever. One, whom I was asked to see in consultation, had been ill for about a month before the true nature of the disease was suspected. He was then suffering from hectic fever, and the liver formed a tumor occupying the greater part of the right side of the chest and abdomen, extending into the left hypochondrium. Chloride of Ammonium was now prescribed with the necessary precautions, but without the slightest hope of its doing more than palliating the patient's sufferings.

Death took place in two or three days afterwards, and the *post-mortem* examination revealed the existence of an enormous abscess, of which the containing cysts and compressed liver tissue were only about two lines in thickness. Suppurative hepatitis is rare in natives compared with Europeans, and there is on that account in them a greater chance of the disease being overlooked. The fact is, that in the treatment of tropical diseases of whatever kind, it is just as necessary, if we wish to avoid errors, to make frequent and searching examinations of the hepatic region as to feel the pulse, or look at the patient's tongue.

That the readers of this Journal may be placed in full possession of all the points in the treatment which I deem

necessary for success, and by which success is attainable, I believe, even in the most serious cases, if the disease be promptly diagnosed, I will conclude these remarks with the following summary of the treatment from a paper of mine published in the *Indian Medical Gazette* for August and September 1872.

Recapitulation of the Treatment of Hepatic Disease with Chloride of Ammonium.

Primary Acute Hepatitis.—In the early stage, should there be no accompanying diarrhœa, a mild purgative may be administered at the commencement, with a view of clearing out the *primæ viæ*. If there be diarrhœa, the patient passing frequent, loose, and bilious motions, a pill composed of mercury pill grs. ii., Dover's powder grs. iii., repeated every two hours till four or five have been taken, will be found the most effectual means of checking it without the risk of setting up gastro-intestinal irritation. Afterwards, saline diaphoretics and diuretics, in frequently repeated small doses, should be administered till their action is well established. I have found a mixture containing liquor ammoniæ acet. ʒii., with tinct. hyoscyam. ♏ v. in each dose, administered every half hour or hour, to give most relief, inducing free action of the skin, allaying the feverish symptoms and calming the nervous system; and the administration of from ʒss. to ʒi. of tinct. hyoscyam. at bed time, after the repeated small doses during the day, will often have the effect of inducing a little refreshing sleep—a point of great importance in this disease. Fomentations or bran poultices applied to the seat of pain in the right hypochondrium will afford much relief, and should be continued as long as they relieve the pain, and repeated from time to time on its recurrence. In some instances the application of six or eight leeches to the chief seat of pain, when this is severe and attended with much tenderness, and the patient is not reduced, may be necessitated; but in general even this amount of local depletion is not required.

The diet should at this time consist of arrowroot, sago, milk, and water; barley water may be taken freely (as a drink, to assist the operation of the diaphoretic), and afterwards beef tea may be allowed.

As soon as the symptoms, local and general, shall have abated, and diaphoresis been freely established by the above

means, the chloride of ammonium should be commenced in doses of grs. xx. twice or thrice daily, and persistently administered till its characteristic and special action be no longer manifested. On the cessation of its sensible action, should liver enlargement, with feeling of stiffness, weight, or other uneasiness continue, it may be administered in small doses (v. to x. grs.), thrice daily, for some time afterwards with beneficial results.

During the whole of this time the patient should be kept in bed, for it must be borne in mind that the condition of an inflamed liver is not unlike that of an inflamed joint, demanding strict quiescence in the recumbent posture; and therefore a steady and intelligent attendant should constantly wait on the patient in all acute and severe cases, and the bed-pan and urinal should at all times be at hand, so that the patient may not have the least occasion to quit his bed. It must also be borne in mind, as pointed out by Morehead, that the *complete restoration* of the inflamed portion or portions of the liver is not coincident with the cessation of febrile symptoms, and local sense of pain and symptoms referable to the affected part; in fact, recovery must be considered incomplete till several days have elapsed from the cessation of the pain and febrile disturbance, during which time the patient should still be confined to his bed and carefully watched, so as to guard against relapse. By these means, in the majority of cases, a speedy and effectual cure by resolution will be effected.

Treatment of Abscess of the Liver.—In military practice, it frequently happens that hepatitis does not come under treatment till the peculiar symptoms pointing to abscess, either impending or already formed, are manifested; or it may occasionally happen that in consequence of bad diathesis, advanced stage, or other cause, recovery by resolution does not take place under treatment, suppuration occurs, and hepatic abscess is formed. It is necessary to detect this event promptly, because it calls for a line of treatment different from that of the antecedent stage. The diet should consist of light puddings, broths or animal jellies, and wine may be cautiously administered, if it does not excite the pulse or produce irritation of the gastro-intestinal surfaces; but no *solid food should be allowed.*

If the hectic fever arising in this stage of the disease be attended with colliquative sweating, the chloride of ammonium should be commenced, at once, in doses of grs. xx.

twice or thrice daily, and persistently administered till it no longer produces sensible action, and all symptoms of hectic have disappeared; and during convalescence and when hepatic pain and uneasiness have completely subsided, it may be given in smaller doses for some time longer. Should the irritative or hectic fever be attended with a *hot* and *dry* state of the skin, the preliminary treatment recommended in the early stage of acute hepatitis should be had recourse to—the diaphoretic mixture with hyoscyamus; and to relieve the local pain, fomentations or hot bran should be applied to the affected part. A moist state of the skin having been induced, no time should be lost in commencing the administration of the chloride of ammonium as before directed.

In simple acute hepatitis, rest in bed and strict quiescence in the recumbent posture is absolutely necessary for the perfect and speedy recovery of the patient; but when abscess of the liver has resulted, the patient who is permitted to leave his bed, or even move about in bed, is exposed to a greater danger than the mere recrudescence of inflammatory action, which inevitably results from inattention to this important rule. He runs the risk of rupturing the wall of the abscess (which may be making its way by one of the usual channels) before adhesive inflammation has taken place between the opposite surfaces of the peritoneum—an occurrence which would inevitably lead to a fatal result.

Treatment of simple enlargement of Liver.—In simple enlargement of the liver, the chloride may be given in doses of from grs. xv. to grs. xx. twice or thrice daily, according to circumstances, with careful attention to diet and rest in the recumbent position; and it is to be carefully noted, that, in whatever form of hepatic disease the medicine is administered, it should not be given while the skin is hot and dry: indeed, in all cases it is better that it be preceded for a day or more, according to circumstances, by some simple saline diaphoretic (the liquor ammon. acet. mixture above-mentioned); or if the skin be very hot with high fever, temperature perhaps 103° to 104°, a sixteenth of a grain of ant. tart. may be given every three or four hours with the same intention.

Chronic Hepatitis.—Cases of chronic hepatitis with enlargement of liver, from long residence in India and repeated attacks of acute hepatitis, are benefited, and the liver enlargement reduced in a remarkable manner, by the adminis-

tration of chloride of ammonium in doses of grs. x. to grs. xx. twice or thrice daily according to the general principles already laid down, varied, of course, according to circumstances in individual cases.

Case of simple enlargement of the Liver treated with Chloride of Ammonium.

Private O'D ——— was admitted at Thayetmyo on the 24th June 1871 complaining of pain in the situation of the twelfth rib of right side and inability to lie on the left side, on account of a dragging pain in right hypochondrium experienced in that posture. The latter symptoms had been present for a week or more previous to admission. No pyrexia; pulse and respiration normal. On inspection a prominence of the right side of chest extending from the angle of the ninth rib downwards was apparent. The liver was enlarged, hepatic dulness extending in the right mammary line about an inch beneath the costal cartilages. In the epigastrium the area of hepatic dulness was also increased. The right side of the chest, at the level of the ensiform cartilage, measured eighteen inches and one-eighth; the left sixteen inches and three quarters, being a difference of one inch and three-eighths, or two inches and three-eighths more than normal, the patient being left-handed. The patient is much emaciated, and his muscular development is poor, but the left arm over the biceps is one-eighth of an inch larger than the right.

Bran fomentations were ordered to the seat of pain in the side and a podophyllin pill as the bowels were confined. As there was no pyrexia the Chloride of Ammonium was commenced on the following day (25th) in twenty grain doses thrice daily.

June 26th.—The medicine acted characteristically in relieving the pain, and inducing perspiration with the usual special symptoms; he can now lie on the left side without uneasiness, and pressure can be borne over the 12th rib, where before there was pain and tenderness. The prominence at the posterior part of bone of right thorax is almost gone. Cont. the Amm. Chl.; Beef tea diet; one pint of beef tea extra.

June 28th.—Pain and uneasiness completely gone. Ammon. Chl. grs. v. thrice daily.

July 1st.—Doing well; continue medicine. Low pudding diet.

July 3rd.—Omit the Chloride; and to have Quassia and Iron mixture as he is anæmic; diet as before.

July 5th.—Discharged; to attend hospital a few days.

Case of simple enlargement of the Liver, illustrating some of the more unusual special symptoms produced by the Chloride of Ammonium in Hepatic disease.

Lance Corporal J. R.——, a stout, plethoric man, of fairly temperate habits, was admitted to hospital on the 23rd September 1871, complaining of fulness and sense of distension in the epigastrium, and pain and uneasiness about half an hour after taking food. During his service in various parts of India and Burmah has had nine admissions to hospital with dysentery; three, hepatitis; three hæmorrhoids; and several times with dyspepsia. For three months or so previous to admission suffered from dyspepsia, morning sickness and vomiting, and used frequently to vomit his food after taking meals; complained also of sensation of "smothering" when lying on his left side—the easiest position being on the back. Skin cool; pulse quiet.

On examination considerable fulness is perceptible in the epigastric region, where there is also tenderness on pressure and increased area of hepatic dulness. Was ordered twenty grains of Chloride of Ammonium twice daily. Beef tea diet; one pint of milk and one pint of corn flour.

September 24th.—States that from two to three minutes after the dose of the medicine yesterday evening a sensation of "two cold narrow streaks" started off right and left from the tip of the ensiform cartilage, and coursed along the margins of the false ribs on either side, until they reached a point about an inch outside of lines let fall from the nipples. Thence "the cold streaks" extended down the thighs in the central line as far as the centre of each patella. The sensation of cold moved along about as quickly as a painter would draw his brush in graining; and when the knees were reached, the legs beyond became hot and broke out in perspiration, which thence extended all over the body; the perspiration was profuse and lasted about an hour. After this, the sensation of weight and suffocation, which formerly pre-

vented his lying on his left side, was greatly relieved. Continue treatment and diet.

25*th.*—Yesterday, two minutes after taking the morning dose, "a cold streak" (this time single and of greater breadth) spread over the left side of the abdomen as far down as the pubis and afterwards all over the abdomen. The perspiration which followed was not so great as before. Could now lie on left side with ease; but was cautioned against doing so. Continue medicine and diet.

26*th.*—The medicine yesterday was only followed by a sensation of cold, this time stopping just half way between the umbilicus and pubis.

27*th.*—Medicine has now no sensible effect; enlargement in epigastric region gone. Ammon. Chlor. grs. viii. thrice daily.

29*th.*—Discharged well.

Case of Simple enlargement of the Liver treated with Chloride of Ammonium.

Private J. M. —— was admitted into the Regimental Hospital, Thayetmyo, on the 16th September 1871, complaining of pain in the right hypochondrium, where there was also tenderness on pressure. Patient was slightly feverish, probably the result of intemperance. For the previous four or five days had a "stitch" in the right side, which was first felt on parade on bringing his rifle to "the shoulder." Accompanying this was a sympathetic pain in the right shoulder. Two days afterwards the pain, which was at first but slight in the right shoulder, became more severe, as well as that in the right side, and he suffered from headache and alternate flushes of heat and cold; when he turned on the left side, a sensation of weight and dragging was experienced in the right hypochondrium. The area of hepatic dulness was slightly increased, and there was some tenderness on pressure beneath the margins of the right costal cartilages. To have diaphoretic mixture with Tinct. Hyoscyamus every two hours.

17*th September.*—No pyrexia, felt a few stabbing pains in the side this morning. The skin being moist and prepared for the action of the Chloride, to have grains xx. Chloride of Ammonium morning and evening and to observe its effects. Beef tea diet.

18*th.*—Patient states, that about a quarter of an hour after taking the medicine yesterday, he felt a curious sensa-

tion as if the drug were working from one side of the chest to the opposite (one hypochondrium to the other across the epigastrium); he compares it to the sensation of water running across. Then immediately beneath the right false ribs in the right mammary line, a sensation as if pins and needles were going in and out at that point. This was accompanied by a pulling downwards at the same point which lasted from eight to ten minutes (the sensation of picking remaining for a part of that time), and when the latter ceased, the stabbing pain which the patient formerly experienced was entirely removed. While all this was going on (during the ten minutes above alluded to) towards the outer edge of the right rectus abdominis immediately beneath the costal arch, a pulsation as if of a working out and in of a muscle went on; but he had not the curiosity to feel the part to ascertain if the movement was communicated to the surface. Cont. treatment.

19*th.*—Pain of side and sense of weight much relieved and there is less tenderness on pressure. Sensible action of the medicine not so marked; a sensation of pricking and heat in the right hypochondrium is only experienced, lasting for about ten minutes after the exhibition of the dose, followed by warmth and perspiration over the entire surface. Continue diet and treatment

22*nd.*—Sensible action of medicine has ceased and with it pain and uneasiness of side. Patient can now lie on left side without discomfort. Chloride of Ammonium grains xv. twice daily. Beef tea diet one pint. Beef tea and one pint milk as extra.

28*th.*—On the 26th as the patient had a slight febrile paroxysm of malarial origin owing to the cessation of the rains and the fall of the river, he was ordered Quinine grains two daily and the Chloride of Ammonium was omitted. Since then the fever has not returned, and patient is permitted to sit up for the first time. Half diet.

30*th.*—Discharged.

Case of simple enlargement of the Liver complicated with Bronchitis, treated with Chloride of Ammonium.

Private R. A——— was admitted to the Regimental Hospital, Thayetmyo, on the 19th September 1871, complaining of pain in chest and cough, attended with slight

pyrexia. Diaphoretic mixture with small doses of Tinct. Hyoscyamus was prescribed.

On the 20th the chest symptoms being troublesome the treatment was continued. An examination of the hepatic region, however, disclosed the liver to be slightly enlarged, and on interrogating the patient, the symptoms expressive of hepatic congestion were elicited. He had lost appetite and had a sensation of weight and dragging in the right hypochondrium, where there was tenderness on pressure. As the diaphoretic prescribed had induced free action of the skin, and as the chest symptoms were probably depending in great part on the pressure exercised by the enlargement upwards of the right lobe of the liver, the patient was ordered grains xx. of Chloride of Ammonium, and to observe its effects from the moment of taking the dose.

September 21st.—Patient states that about half an hour after taking the dose yesterday evening, he felt the medicine "searching about" from the upper third of the sternum to within three inches of the umbilicus in the median line. When the "working" had lasted about a quarter of an hour, a sensation of pricking was experienced at the ensiform cartilage, thence along the inferior margins of right costal cartilages to a point about an inch on the inner side of right mammary line. The sensation experienced was as if a succession of shocks were going backwards and forwards between the above points. At the same time he began to perspire and experienced a sensation of warmth and comfort. Continue the chloride morning and evening and to have a dose of cough mixture at noon. Tea diet: two pints of milk and one pint of beef tea.

22nd.—Hepatic pain and uneasiness much relieved, chest symptoms less troublesome. Continue the Chloride of Ammonium.

23rd.—*Special* effect of the medicine no longer experienced, but each dose is still followed by perspiration and feeling of comfort.

24th.—Doing well. Chloride of Ammonium grs. xv. twice daily, diet as before.

26th.—Countenance clear and bright, hepatic pain and uneasiness quite gone. Respiratory movements natural. Continue treatment.

30th.—Discharged.

ART. XXVI.—*Fever, its theory and treatment.* By ASSISTANT SURGEON L. C. NANNEY, H. M.'s 3rd Regiment, P.L.I., Secunderabad.

THE pathology of fever has, throughout all ages, been a subject of much discussion amongst scientific men, but little advance seems to have been made in elucidating the obscure causes of this disease.

There are two methods by which scientific discovery may be carried on, the Theoretic and the Practical; the former ingenious, brilliant, and seductive, but dangerous, unless controlled by the latter, which consists of series of careful observations and experiments. In too many cases the theory is not deduced from observation, but first arbitrarily formed, and facts too frequently misrepresented to support it.

The result has been, in many instances, that various ingenious theories, after holding ground but for a short period, have eventually proved fallacious, and have been superseded by others no less transitory in their duration; until, in our theories of Fever, for example, dissatisfied with all modern hypothesis, we return to those of Hippocrates and Galen.

The theory of the former, as revived and revised by Liebig, has become the most popular theory of the day, nor are the views of Galen now considered obsolete.

Valuable as theory may be, in indicating a safe track towards the detection of efficient causes, in guiding us in our choice of things to be observed, and as a frame-work which binds together the mass of various experiments and observations; still, it is on these latter that we must depend for the accuracy and reality of our knowledge; nor must we hesitate to abandon the theory, so soon as it ceases to be fully borne out by the facts, elucidated during the course of the investigation. While but few are capable of starting an able theory, all may aid by so amassing and arranging facts as to afford ample material for the formation of satisfactory conclusions.

Dr. Holland observes, in his Medical notes and reflections, "a very especial advantage has been the application of numerical methods and averages to the history of disease; thereby giving it the same progress and certainty which belong to statistical enquiry on other subjects. Averages may, in some sort, be termed the Mathematics of Medical Science. Through Medical statistics lies the most secure path into the philosophy of Medicine."

In reference to which passage Sir John Herschel remarks, as follows ;—" The comparison of multitude with multitude, the destruction of errors by mutual collision, and the slow emergence of truth from the conflict by its outstanding vitality, belong to a maturer age of science than that in which medicine had its origin or attained its present importance."

In the arrangement of the facts amassed during the course of our observations, we cannot do better than bear in mind the five ways, mentioned by Herschel, in which facts may be rendered, by the unskilful employment of them, even " more fallacious than theories."

" 1. By ' having preconcevied ideas of the final result.'

" 2. By ' neglecting the numbers which contradict the result they wish to obtain.'

" 3. By ' incompletely enumerating causes, and only attributing to one cause what belongs to a concourse or many.'

" 4. By ' comparing elements which are not comparable.

" 5. By ' singling out the extreme partial results which tell on the side to be defended and ignoring all the rest.'"

The theory of Hippocrates, as revised by Liebig, supposes, that a septic poison, of animal or vegetable origin, or both, is taken into the blood, producing changes in the whole mass of the blood, and propagating itself by, what he terms, *a quasi* fermentative process, and then, after a somewhat, definite period of incubation or latent period of contagion during which these changes are occurring, fever is set up as an eliminative action, the various eruptions and critical discharges being also purely eliminatory.

Taking then this theory as a guide in the direction of our observations, let us consider how far our own experience tends to confirm or confute it.

In some cases of endemic fever, local causes have been assigned to which a great appearance of probability attaches itself, as in the case of marshy ground, or the vicinity of dense jungle, where the unhealthiness of the situation is self evident ; but where various causes combine to produce the peculiar condition favorable to the development of this disease, it is more difficult to detect its true origin.

In such cases careful observation alone, and comparison of facts with the results of the investigations of others, and the study of the history of corresponding epidemics, where the local causes were analagous, may guide us in forming an opinion, and ultimately lead to the unravelling of the mystery.

In a case where several agencies are, with apparently equal probability, pointed out as the cause of fever, circumstances might lead us to direct our attention to one special agents which we should suppose to exert a more powerful influence than the rest; and also to be increasing in importance, if we observed that the type of the disease, which had been for years endemic at certain seasons, appeared to be changing in character, assuming a more severe form, thus indicating the prominence of the more powerful amongst the causes formerly assigned. Thus in the year 1870 the fever endemic during the rainy season in the Native Infantry Lines, situated to the south of the station of Secunderabad, is described as a mild intermittent, characterized by the absence of symptoms indicating a malarial origin, and seldom requiring the use of quinine. In 1871 the same type of fever prevailed to a very large extent, this at the time appeared attributable to the fact of the Regiment (3rd L. I., the 4th N. I. having occupied the Lines in 1870) having newly arrived in Secunderabad, after long tours of service in stations such as Cannanore, Tonghoo, and Madras, and being consequently in an enfeebled condition, unacclimatized, and susceptible to the slightest influences. In the present year (1872) the fever has again made its appearance, but not, as might have been expected, to a less extent, nor has a year's acclimatization had any effect in diminishing its force. On the contrary the numbers have excessively augmented, from 170 the maximum of 1871, to 257, and although resembling it in some of its features at the onset, it has assumed a severer form, being somewhat remittent in character and attended more frequently by complications of dysentery, diarrhœa and paralysis, and speedily followed by greater depression and nervous exhaustion, than was observed in the cases generally treated last year. This fact appears to negative the presumption that the increased rate of fever in 1871 was due wholly to the unacclimatized condition of the men. Had such been the case, it might have been expected that the fever rate would have diminished yearly, as the men become more habituated to the climate; this actually occurred in the 4th Regiment, in which the rate of sickness decreased in regular ratio.

1866	1,128
1867	740
1868	679
1869	327
1870	214

Fever also attacked some of the officers who had not suffered in the previous year, and one and all stated that it left them in a weaker and more debilitated condition than any previous fever which they had experienced. One in particular, who had spent three years in Shwegyeen, complained of even greater exhaustion in this case, and I observed that patients presented a very anæmic and asthenic appearance. As far as I can judge, after careful inquiry and investigation, the causes of sickness seem to operate most powerfully in these and the adjoining Cavalry Lines, which would apparently indicate the unhealthy source to proceed from this quarter. I have noticed that when heavy rain falls in these Lines, it usually gathers up in the direction in which the city of Hyderabad lies, and that when very wet here, it is frequently fair in other parts of the cantonment, and *vice versâ,* the rain-fall being unequally diffused through the station. Also, that dense fogs rise from the same quarter and advance steadily in this direction, filling the hollows in the undulating ground on which the Lines are built, and enveloping the whole vicinity in masses of oppressive vapour, doubtless a sufficient vehicle for the transmission of any malaria with which it may meet in its onward progress. On referring to Dr. Maclean's able article on Fevers in Reynold's Medicine, Volume I, page 73, I find the following passage:—

" From the malarial quarters of that densely populated and most unsanitary city (Hyderabad in the Deccan) I used to receive into the Residency Hospital, during the autumnal months, a number of cases of this kind, presenting from the first, signs of great depression, the fever after the second or third exacerbation becoming almost continued, the skin being yellowish . . . . . . the pulse exceeding 120, small and compressible . . . . . . respiration, quick and sometimes irregular, the abdomen distended, the bowels loose, and a disposition to hæmorrhage from nose, mouth, and bowels and, almost invariably, delirium, with a tendency to coma. Such cases, unless energetically treated, hasten rapidly to a fatal termination by exhaustion and coma."

I have found that the symptoms here noted agree more closely with those which have come under my observation this season than any described by other authors, whom I have consulted on the same subject.

I am indebted to the Residency Surgeon, Dr. Wyndowe, for the information that, although there is not an unusual amount of fever this year at Hyderabad, its type is more

remittent, and it is more commonly complicated with liver affections than is usual in that city, and also, in many instances, there is a typhoid tendency. These considerations incline me to the opinion that the fever prevalent this season in the Regiment under my charge, cannot be wholly ascribed to the effects of damp and wet, or to the sudden changes of temperature. These are excessive, and operate powerfully as the exciting causes in the present instance. Whether they may sufficiently account for the fevers of former seasons is beside the purpose of the present enquiry, but I am of opinion that in this case they cannot be assigned a more important position than that of secondary causes, and that the root of the disease must be traced to a deeper source. As I shall proceed to show, the symptoms indicate the absorption of a certain degree of malaria, and the treatment which I have found most efficacious points, by an inverse process, to a septic poison, for the presence of which the effects of damp and cold cannot sufficiently account.

Imbued with this belief I was strongly impressed with the idea that antiseptic remedies would prove most beneficial. I had previously given quinine in most of the cases, and was surprised to find that in a good many instances it failed to have the desired effect. There is also one great drawback in the use of quinine where cases of fever are numerous and protracted, viz., the costliness of the drug, and the difficulty of procuring it in quantities sufficient to meet the demand, which renders it very desirable that a less expensive and more easily obtainable remedy should be substituted. I had formerly tried the Alkaloids, Quinidine, Cinchonine and Cinchonidine, but was not satisfied with the results. I employed Arsenic, but, in the present instance, without benefit. I therefore commenced the administration of Carbolic Acid in those cases in which Quinine seemed to exert no influence, and finding it to succeed, even beyond my expectations, I placed a number of newly admitted cases under the same treatment from the onset, keeping a careful record of them as compared with those treated by Quinine.

I shall, next month, forward the statistics thus obtained, and some of the most important cases in full, merely remarking at present, that I found in most of the cases that after a few doses of Carbolic Acid the symptoms and general

appearance ameliorated, the pulse increased in fulness and strength, the tongue became remarkably clean, and the dry unpleasant taste in the mouth disappeared, the eyes looked brighter, and the whole aspect changed for the better. When Carbolic Acid can be substituted for Quinine, the following advantages are to be gained, the taste is sweet and rather pleasant, causing no subsequent nausea or vomiting, no derangement of the digestive system, nor the unpleasant sensation of singing in the ears and deafness, usually experienced after large doses of Quinine. It produces profuse diaphoresis, acting freely on the skin, showing that it is a powerful eliminator. It can also be given during a paroxysm, hastening on the sweating stage, and shortening the duration of the attack.

Before bringing this subject to a close I may note that several of the most important causes to which malaria has been ascribed, exist, to a certain extent, in these Lines. The subsoil consists of granite, in a crumbling disintegrated condition, the surface soil being composed chiefly of the debris of the larger rocks, in which are embedded huge boulders of a more highly crystallized granite, which being covered in patches of deep purple, grey and yellow, with a minute lichen, cannot fail to give out deleterious matter; the water in the wells percolating through this soil must also be more or less contaminated.

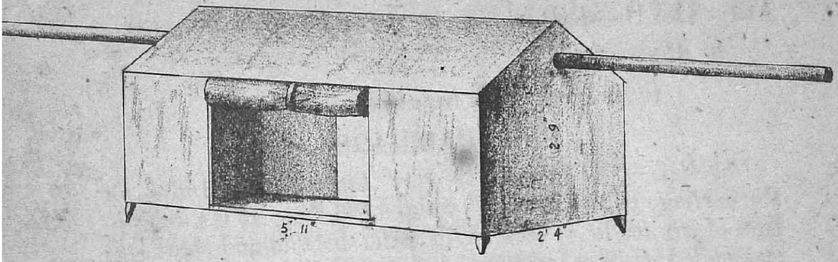
I visited the four wells by which the Lines are supplied, and, judging from their situation and appearance, it is probable that a certain amount of deleterious matter may be washed down during the rains, thereby impregnating the water with a considerable amount of impurity. The natives themselves do not consider the water good, and name it as one of the causes of their sickness.

I forwarded samples from each of the wells to the Analyst of Potable Waters, but owing to his absence the analysis must be made on a future occasion. Should the results prove of interest I shall communicate them. In addition to these local unfavorable features, these Lines are, from their situation, exposed, as I before remarked, to all noxious influences brought up by the prevailing winds, or carried by dense fogs or currents of air, being wholly unprotected by trees or belts of trees, which might serve to intercept them.

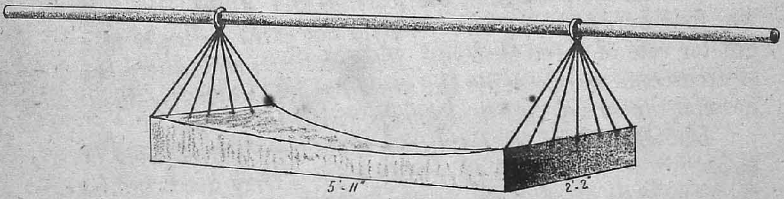
(To be concluded.)

SICK CARRIAGE.

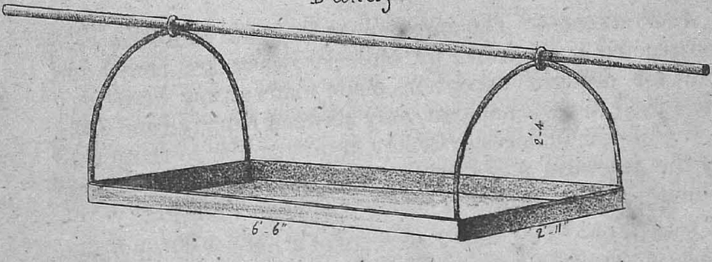
Dooley.



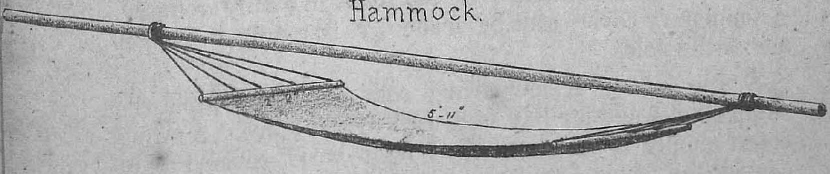
Swing Cot



Dandy



Hammock.



Alex. Barren Lith.　　　　*Oriental Lith. Press*

ART. XXVII.—*Extract from the "Record of the Expedition to Abyssinia."*

(*Communicated by the Inspector-General I. M. D*)

SICK CARRIAGE.

Dhoolies.—" The dhooly is very much used in India for the carriage of the sick. It weighs 123 lbs. It is a description of cot made of teak with cane bottom and short legs suspended from a bamboo pole by a light iron frame-work which is covered with waterproof canvas.

" It is carried usually in India by six bearers. Its great weight and bulk, however, render it unfit for service in a hilly country.

" During the passage of the Bashilo and Jidha rivers, it was found that twelve bearers could not carry a dhooly at a greater rate of speed than one inch an hour, and along the steep ascents and descents the army has had to travel, dhoolies constantly *delayed the baggage animals.*

" Dhoolies might be improved if constructed entirely of light iron work instead of heavy teak. They need not be made so high, or of such great breadth as at present, and their legs should not exceed from two to three inches in length. Over a level country, the dhooly is an admirable means of sick carriage.

Ambulances.—" The ambulances brought to Africa were constructed to be drawn by bullocks ; they are heavy and unfit for draught except on made roads ; they were very little used in the campaign, only between Kumayli and Zula.

" Light ambulances drawn by mules, similar to those used by the American and Prussian armies, might have been of some service on the roads between Zula and Adigrat.

Dandies.—" The dandy consists of a light wooden framework with a cane bottom with two pieces of iron at either end supporting the bamboo pole. It weighs 54 lbs., has nearly all the advantages of a dhooly, and its portability renders it more suitable over bad roads in a hilly country. A temporary cover can be made by fastening a blanket across the pole.

Swing Cots.—" A few swing cots purchased from the shipping in Annesley Bay were used by the Force. A swing cot is simply a frame-work of light wood covered with canvas, the whole being supported by a bamboo pole and weighing altogether 45 lbs.

"Swing cots were found to be well adapted for carrying men suffering from slight ailments or injuries, but uncomfortable for patients when placed on the ground (especially in wet weather) as it is occasionally necessary to rest the bearers on the line of march. They have the advantage, however, of being light, and require only four bearers each.

Hammocks.—"Several of McGuire's field hammocks were sent with the force; these, lashed on bamboos, were used for the conveyance of sick on the line of march. They weigh with pole only 24 lbs. each.

"They proved very useful for carrying men falling out on the line of march from fatigue or temporary ailments; but they were not found to be adapted for wounded men or for patients suffering from serious illness; they might, however, be easily made a most confortable means of carrying men suffering from any complaint, and owing to their lightness, portability and other advantages, they would then doubtless be the best description of sick carriage for such a country as that we have just marched through.

"The field hammock had the same disadvantage as the swing cot, in that it could not be placed on the ground in wet weather (this defect might, however, perhaps be remedied by using the staves as supports). If made longer and wider and fitted inside with a light wooden frame, so as to prevent the patient from being doubled up (which he is very liable now to be, unless poles are specially fitted) the field hammock would be a better means of conveyance for sick; and forming as it does a sleeping hammock for men when encamped, and thus keeping them clear of damp ground and conducing to their health and comfort, it would appear highly desirable that some means should be taken to improve the McGuire field hammock to render it a more perfect means of conveyance for sick men."

ART. XXVIII.—*Deaths from Dengue.*

(Communicated by the Sanitary Commissioner, Madras.)

The Inspector-General, Indian Medical Department, has been good enough at my suggestion to obtain the experience of medical officers serving in the Presidency division, of Dengue viewed as a cause of death. In July and August last the district registrars in the town of Madras returned numerous deaths as due to "Dengue" while the public

hospitals and other institutions, although showing numerous admissions, gave no return of fatal cases.

It seemed, therefore, desirable to collect the experience of medical officers serving in the Presidency Division on this point, and the accompanying papers show that although "Dengue" under proper treatment is not often fatal, yet that it has been in some instances undoubtedly a cause of death, either immediate or remote.

The history of the epidemic and its progress over this part of India, will be noticed in my annual report for 1872, and I content myself on this occasion with furnishing for publication, the following facts in regard to the fatality of the disease.

(Signed) W. CORNISH, F.R.C.S.
Sanitary Commissioner, Madras.

Surgeon-Major W. J. VANSOMEREN, M. D., *Surgeon, 1st District,* remarks as follows:—"I have not had a single fatal case of Dengue in my hospital, nor yet amongst my patients out of hospital. The only instance in which it appeared to me that the disease may have occasioned death, was that of an old man, in the 87th year of his age, who was unconscious when I first visited him, within about 18 hours of his attack, and who was stated to have had pains all over his body, accompanied with fever; he was feverish when I saw him, but he never became conscious and sank in about 24 hours. I think there is reason to doubt if his case was one of Dengue.

I have treated a large number of cases of all ages from infancy to old age, they have all recovered with the (doubtful) exception referred to above."

Assistant-Surgeon W. MACRAE, M. B., *Surgeon, 2nd District,* states:—"In the Military Female Orphan Asylum, there were 100 cases. They were all very similar, more or less, fever for two or three days with head pain and with or without pains in the joints, a period of weakness with want of appetite for a few more days, and then recovery. The treatment in all was very simple; generally a laxative on admission and then a diaphoretic mixture. A measly eruption was seen more or less extensively in half the cases.

At the Vepery Hospital 235 cases were treated. There

was only one death in the case of a boy 9 years old. He was seized at night, brought to Hospital next forenoon, and died a few minutes after admission. His temperature on admission was above 107° Fah. Seven children brought to hospital with convulsions and very high temperature in all cases above 105°, were immediately treated by cold baths. One little girl æt. 10 months, an E. I. with temperature 106° was kept immersed in water at the ordinary temperature for 1½ hours with great benefit. Three persons aged 4,6 and 9 years respectively, suffered from tetanic rigidity of the muscles of the body generally, after a few days fever. In a good many women the menstrual flow came on with great violence immediately after being seized with dengue, though it was not due for one or two or even three weeks. I have had no deaths in my private practice, though one infant at 6 months was despaired of for sometime. The cold bath, however, brought down the temperature and relieved the symptoms.

The Vepery Hospital apothecary saw one strong well made native man æt. 30 die on the 3rd day in delirium with very high temperature. He was not under his treatment He saw several children in convulsions from the disease and treated them all with the cold bath: all recovered."

Surgeon W. FRY, *Surgeon, 3rd District,* writes :—"That no deaths from "Dengue" have come under his notice in the 3rd District."

Surgeon-Major C. M. DUFF, M. D., *Surgeon, 4th District* remarks :—"No casualty from "Dengue" has occurred among those persons who received treatment as in- or out-patients of this hospital."

Surgeon JAS. KEESS, M. D., *Fort Surgeon,* writes :—"No deaths from Dengue occurred in my medical charge. I was called to see two infants both of whom died of this disease. One from convulsion and the other from exhaustion."

Surgeon-Major G. SMITH, M. D., *Physician, General Hospital,* writes as follows :—"I have the honor to report that from the 30th April 1872, the day on which the first admission from Dengue took place up to the 31st of October inclusive, 926 cases of that disease have been received into hospital, of which, at the latter date, 25 remained under treatment.

2. The total number of deaths recorded in 901 cases treated, amounts to 4 or 0·44 per cent.

3. I append a short abstract of the fatal cases.

(*a.*) A. Gaynor (E. I.), admitted into hospital 6th March 1871, died 12th September 1872. A case of chronic tubercular degeneration of the left lung. At the time when he was attacked with dengue he was in a very feeble and exhausted condition with prospect of an early fatal termination to his case. The fatal result was somewhat hastened by the intercurrence of Dengue.

(*b.*) Appoo, a native lad æt. 8 years, was admitted into hospital on the 4th and died on the 5th October 1872. The case was one of Dengue ushered in by severe fever, vertigo, headache and convulsions; when admitted he was insensible, a second fit of convulsion proved fatal. He was 21 hours under treatment.

(*c.*) J. Smith, (E.) was admitted on the 23rd August with an attack of Dengue which lasted from the 23rd to the 28th of August inclusive; on the 29th and 30th he was free from fever. He had slight fever on the 31st followed by an intermission of five days; on the 6th September he had slight fever with an intermission of five days; on the 11th he had fever followed by an intermission of 6 days; fever supervened on the 20th followed by five days intermission; on the 26th fever recurred followed by two days' defervescence; on the 29th fever set in with much difficulty of breathing which gradually became more distressing until his death on the 6th of October. The post-mortem revealed the cause of death to have been acute tuberculosis. The patient was a man of delicate strumous constitution.

(*d.*) J. D. King (E. I.), admitted to hospital on the 3rd of October, died on the 8th idem. When admitted he was in a comatose condition with all the symptoms of apoplexy. Repeated attacks of convulsions supervened. Sensibility partly returned and his condition appeared to be improving when he was attacked with Dengue on the evening of October 7th, a minute papular measly eruption appeared and his pulse rose from 96 to 112. The eruption was very erythematous, and appeared principally on the face, chest and hands. It was quite characteristic of Dengue. Convulsions followed and he expired the same night. No examination of the body was permitted.

4. There is also at present a case in hospital, the future progress of which causes me some anxiety. In this case Dengue attacked a patient suffering from a mild attack

of enteric fever, and the subsequent progress of the disease has acted seriously upon the strength of the patient.

5. These cases seem to indicate that although Dengue "pur et simple" may be an affection which but slightly imperils life, yet, that it is one which may lead to the development of latent tendencies to disease, and further, that its depressing effects upon the heart and nervous system may prove disastrous when, as an intercurrent attack, it complicates the course of any serious malady from which the patient may be suffering."

Surgeon W. N. CHIPPERFIELD, *Superintendent, Eye-Infirmary,* states as follows:—"I have attended, since February last, 212 Europeans and 362 natives with dengue, namely 117 Europeans and 309 natives, in-patients of the General Hospital; one European and 13 natives, in-patients of the Eye-Infirmary; and 94 Europeans and 40 natives in private practice, and hitherto I have not met with a fatal case. Several European and East Indian children of ages varying from 3 months to 6 years, suffered severely from the disease with remarkable prostration of the nervous system. Some of these were attacked with convulsions, but I am happy to say no casualty occurred. The younger patients up to 16 years of age, as a rule, suffered but very little from the pains, stiffness and lameness which are so common sequelæ of the disease in adults; but in this class of patients troublesome diarrhœa is a very common complication. My experience is that, in the greater number of instances, natives suffer much less than Europeans.

Senior Apothecary Turnbull informed me that in his practice a Eurasian lad of 8 or 9 years died of dengue; he was suddenly seized with convulsions, followed by frothing at the mouth with the ejection of a mass of partly coagulated blood. Chinniah Naidoo, contractor for civil Hospitals, also informed me that three children died of the disease in his house, the fatal event in each case being preceded by loud screams and sudden vomiting of blood."

Surgeon R. W. COCKERILL, *Superintendent, Lying-in-Hospital,* writes:—"I have had no deaths from Dengue among adults, but two children aged 5 and 13 months respectively while suffering from dengue were attacked by convulsions and died in this hospital. Both were very ill on arrival and died shortly afterwards. In my private practice every case has recovered."

Surgeon W. FRY, *in Medical Charge H. M's Penitentiary*, states:—"There have been no deaths from Dengue in the Penitentiary Hospital."

Surgeon J. M. JOSEPH, M. D., *Surgeon, Body Guard*, writes:—"I have the honor to report that no case of Dengue has terminated fatally in the hospital of the Body Guard or in my practice, although a very large number of cases have come under my observation and treatment, both in and out of hospital."

Assistant Surgeon S. B. HUNT, *7th Regt. Native Infantry*, remarks as follows:—"The only deaths which I can in any way attribute to Dengue are the following:—

The first case was a recruit boy, aged eight years, who was brought to the hospital suffering from high fever and insensible. He was admitted in the evening and died the next morning. He never recovered consciousness, and he had a severe convulsion (the only one) about 15 minutes before his death. This case occurred last July. The second case occurred in my private practice in the person of a female aged nine months, the child of Indo-Briton parents. The child was attacked with fever followed by convulsions which increased in frequency and terminated fatally in about forty-eight hours from the commencement of the illness. I have seen no deaths from this disease in adults."

Assistant Surgeon R. V. POWER, M. D., *13th Regiment, M. N. I.*, writes:—"Within my experience I have not known of a single death from Dengue."

Surgeon J. M. JOSEPH, M. D., *17th Regiment, N. I.*, writes:—"No case of Dengue has terminated fatally in the Hospital, 17th Regiment, N. I., or in my practice, although a very large number of cases have come under my observation and treatment both in and out of Hospital."

Surgeon T. G. HOWELL, *37th Regt., Grenadiers*, writes:—"No deaths from Dengue have taken place in the 37th Regt., Grenadiers."

Surgeon A. H. BEAMAN, *in Medical Charge, E. A. V. Company, Palaveram*, states:—"During the last 3 or 4 months about 422 cases of Dengue have come under the observation of myself and Assistant Apothecary Hawkes of the E. A. V. Company at this station; men, women and children of all ages were attacked by it. No deaths occurred, nor do I believe that "Dengue" *per se* is ever a fatal

disease. It is just possible that the convulsions, with which the disease is almost always ushered in when children are attacked, might on rare occasions prove fatal, but I do not consider it possible."

Surgeon D. KEARNEY, *in charge of the Details at Saint Thomas' Mount,* submits the following return of the cases of Dengue that came under his treatment ; no deaths occurred among them.

	Admitted.	Discharged.
Men ...	90	90
Women ...	133	133
Children ...	205	205
	428	428

Assistant Surgeon W. S. FOX, *Vellore,* writes :—"Only one case of death from Dengue came under my own observation, a European child aged 3 years, and this was more the result of want of proper care and attention; both parents being perfectly helpless themselves from the disease. The child while suffering from a severe attack was left to the sole care of a cooly, and I fear very much neglected. With both parents the type was very severe ; one especially took a typhoid form with buboes in the axillæ. When in charge of the 28th Regiment lately, I had reason to believe that some few cases of deaths in the families reported to me as fever were from Dengue, but as they did not come under my own observation or that of my subordinate, I cannot speak with certainty ; in any case there could only have been a few, and probably want of proper care and nourishment would account for most if not all."

Surgeon J. WILKINS, M. D., *in charge of the Detail Hospital, Vellore,* submits the following number of cases of Dengue that came under his treatment :—

	Admitted.	Discharged.
In-patients ...	497	497
Out do. ...	428	428

"Remarks—Many cases of Dengue that occurred in the Lines have not come under treatment. No record of any case having proved fatal."

ART. XXIX.—*Case of reported death from Dengue. By First Class Hospital Assistant,* C. SITHUMBRUM PILLAY, No. 456, Raj Hospital, Tanjore.

On the 16th November 1872, a Brahmin named Rajandrum Pundit, happened to mention to me that his brother Sivasawmy Pundit, had died of Dengue that day in Tanjore Fort. Being aware that the Sanitary Commissioner and others had reported dengue to be a non-fatal disease so far as adults were concerned, I thought it desirable to have the history of the case carefully investigated, and accordingly I brought Rajandrum Pundit to Hospital, and obtained from him the following history of his brother's illness, in the Zillah Surgeon's presence:—

Sivasawmy Pundit, Brahmin, aged 55, employed in the palace of Tanjore as a priest, known to me personally as stout, middle-sized and apparently healthy, was attacked with a fever, believed to be dengue, at midnight on 13th November, which increased during the 14th and passed off with profuse sweating about day-break on the 15th. There was, however, some abatement of the fever and some sweating on the evening of the 14th.

While the fever was present he did not sleep, he was not delirious, nor did he vomit nor suffer from diarrhœa. He did not complain of pain in his head, or in his back, or in the nape of his neck; the pain was limited, Rajandrum Pundit stated, to the joints.

On being asked to specify the joints affected, he said that the knees only were painful. The deceased was not able to sit up; he did not complain of thirst.

Early on the 15th he was seized with purging and vomiting. When these symptoms first set in does not appear from his brother's statement, but the wife of the deceased, whom I saw on the 19th informed me that the vomiting preceded the purging.

Both the wife and the brother agree in stating that the vomiting was distinctly of a bilious character, and that it ceased at midnight; the brother's statement, however, was that he vomited 6 or 8 times, while the wife informed me that he vomited 12 times. Both are also agreed that the purging commenced at day-break and ceased at midnight on the 15th, and that the evacuations were about 9 in number;

the last evacuation, passed one hour before his death, both the wife and brother say was dark colored, and that most of the other evacuations were yellow and watery. The wife, however, states that he passed one white evacuation only when the diarrhœa set in, while the brother's statement was that the first two evacuations were white. At first the brother appeared to hold that these light-colored evacuations were like rice water, subsequently he corrected himself and said that they were like slime, and this last was also his sister-in-law's description. Both were agreed that the deceased had no cramps, and that his skin became cold after midnight on the 15th; also that he had a distinct voice, and that he went on talking up to 5 A. M., on the 16th, that is to within about an hour of his death; that he had difficulty of breathing during the night, and that he became insensible an hour before he died. His urine was not suppressed.

The deceased is reported to have enjoyed good health generally, but to have been liable for several years to rheumatic pains which troubled him 3 or 4 times a year, as well as to occasional attacks of asthma, but he had not previously suffered from bowel affection.

On the 13th November he was at the palace as usual on duty and took his morning meal; he did not take his food in the evening because the 13th was the anniversary of his father's death. Until the fever left him, on the morning of the 15th, he was not given any food, according to the well known native practice of withholding food in fever. During the 15th he was given rice and sago congee without milk, 6 or 7 times, but after 10 P. M. no food was given.

In the street in which the deceased lived I counted 35 inhabited houses, and ascertained that there were cases of dengue in almost every house. In the house occupied by the deceased and his family a case of dengue occurred at the end of September, but there had been none other previous to 13th November.

The deceased declined to have any medical attendance, feeling sure that the disease was dengue, and this opinion was shared in by his family and neighbours who, no doubt, had seen many cases of the disease, if they had not actually experienced it in their own persons. Asthmatic symptoms were, however, troublesome on the 14th, and

it is just possible that the pain in the large joints may have been due to rheumatism. The looseness of the bowels, which seems to have caused Sivasawmy Pundit's death, is sometimes considerable in dengue. In a case of an European child attended by the Zillah Surgeon, where the swelling of the joints and the eruption were marked symptoms, dysentery was sufficiently severe to place the child's life in some danger; and I know of another case of undoubted dengue in an adult where profuse diarrhœa existed for 24 hours, but did not much reduce the patient.

The fatal collapse in Sivasawmy Pundit's case might probably have been obviated by sufficient food and judicious treatment.

OURSELVES.

IN our last issue for November we stated that it was our intention with the present number of this Journal to bring this publication to a close, for the reasons specified in our Editorial columns. During the past month we have received a few suggestions from some of our contributors and friends which we think, if acted upon, may be the means of extending the circulation of the Journal and be the means of enlisting the interests and help of those who have not hitherto assisted us either by becoming subscribers, or by contributing to its pages. We have, therefore, determined upon conducting the publication of this, the only periodical representing Science in this Presidency, for a further period of six months, as an experiment. We take this opportunity, therefore, of appealing to the members of both Services as well as the members of Apothecary and Hospital Assistant grades to aid us, in the manner alluded to above, in averting the untimely and unnatural death of one of the oldest Medical Journals in India.

MEDICAL EDUCATION OF WOMEN.—II.

IN an article which appeared in our impression of October last, we ventured to draw attention to a subject, which is not a little occupying the minds of thinking individuals at home, viz., the advantage of so extending the curriculum of female education as to provide, in keeping with the spirit of the age, for

an honourable and really useful career for that interesting branch of the human family, who, it is to be feared, have been hitherto regarded as fit only for domestic drudges, or as well-dressed living pictures to ornament a Ball-room. We are no visionary believers in, or rampant advocates of, "Women's rights;" but we belong to a practical school, whose creed it is to hold that a woman has a higher destiny to fulfil than merely to bring a child into the world, to mend her husband's socks, or to read sensational novels as her sole occupation in life. We are more particularly interested at present in woman's fitness for acquiring medical knowledge, and her special adaptation for making use of that knowledge, either as a means of livelihood for herself, or of disinterested benevolence to those around her, in whatever position she may be placed. Men, very generally, find their sphere of usefulness, or their lot in life, already settled for them by circumstances over which they individually have but little control. With women the case is different; for beyond the primary duties that fall to each, as daughter, wife, or mother, it much depends on a woman's own inclinations and feelings what work she will undertake, or indeed whether she will undertake any work at all. Except among the actual working classes, where dire necessity enforces labour that provides the sustenance of life, women generally do not work in the sense in which we understand work. In the middle classes most women content themselves with the simple duties of the nursery, or with the task of seeing that the daily table is set out in order, and is amply provided with creature comforts for the good-man's delectation. In the higher classes female life is often still more aimless and profitless; personal comfort, dress, finery, and social amusements being the only objects of thought and ambition. What care such

women for even the natural position designed by the Creator of "help-meet" to man? They live an indolent life of voluptuous ease, or gilded refinement. They actually delegate the most sacred duty of womanhood, the care of their children, to paid governesses and nurses, who, good and faithful as they may be, cannot devote to the infant heart and budding mind the constant and varied ministrations of gentle, thoughtful love with which God in His wisdom has gifted the true mother, alone. It is good, however, for the men of the present generation, and the little ones that will be the fathers of a future generation, that a change is beginning to come over the spirit of the female dream. All women are not alike in their self-seeking, or in their love of indolent ease. To the honour of womanhood be it said that there are many noble exceptions who have no love for this state of moral degradation; and it is now not wonderful to find many women in all classes of life who are sincerely anxious to do all the good they can for their fellow-creatures, and thus glorify the Great Master of the human race. It is among the ranks of such women—and it is to be devoutly hoped that their ranks will ever extend—that we shall find eager candidates for medical knowledge and skill, in view to the after-exercise of such knowledge and skill for the good of mankind.

It must not, however, be forgotten that medical work is too fatiguing, too anxious, to find favour with those who value knowledge for the personal gain it may bring, rather than for the blessings it is calculated to confer on others by its exercise. There must thus of necessity be two or three different standards of medical education for women. The highest standard would not attract many students, in India at least; for by the highest standard, we mean a full course of study, such

as is given in the Medical College to those who intend to make the practice of medicine their profession. At Home there are many women prepared to give up the time, and undergo all the labour and fatigue, necessary to attain this standard. Here, however, we do not think that many women could, or would, avail themselves of the opportunity, even were it conveniently afforded them. But granting that ladies in India have not time and opportunities to go through a complete course of study, we are sure nevertheless that there are many who would thankfully attend classes and lectures on such subjects as Physiology, Hygiene, Midwifery, Diseases of Children, and Minor Surgery, if their attention were invited to the subject, and befitting arrangements made for their presence. In large towns like Madras there is, of course, an ample supply of medical men, and medical men too of high acknowledged skill; so that in such favoured places we never need fear being left to watch in breathless anxiety for the doctor, who, perhaps having a long way to travel, may arrive all too late. But even in Madras it would be of the greatest value, for mothers of families especially, to have some medical knowledge. Sudden accidents often unhappily occur among the inmates of the house or the servants in the compound, and in such cases much may depend on prompt and appropriate action. This applies with all the greater force in the Mofussil, in outlying stations where there is not even a Government Dresser within reasonable distance. Army surgeons are not to be found in every small town of India; and qualified independent practitioners are as rare as the black swan. The Medical men of the service are principally located where there are troops, or are placed in charge of large civil stations and jails. But European ladies in the position of wives of Judges,

Collectors, Officers, Engineers, and Missionaries, are scattered broadcast over India. These have it in their power to do an immense amount of good; and we cannot but believe that many of these ladies would be most thankful for such an interesting and ennobling employment as bringing the solace of medical aid to the enfeebled or anguished frame. They might also be able to help each other in their families at times; and while there are so many servants and retainers attached to every large household, there will always be scope for a lady's kind and intelligent ministrations. Many ladies do even now endeavour to attend to their servants and children in minor ailments; but of course with the best intentions, one cannot do much good while ignorant of the import of symptoms, and equally unacquainted with th epowers of drugs, and the proper administration of even simple remedies.

It is now time, however, to turn our attention to a practical view of the question we have set ourselves. We have endeavoured to assign reasonable grounds for our views on the important subject of female medical education. At all events we feel sure that no one will hesitate to admit that trained and skilled assistance is preferable to the ignorant endeavours of those, who, never having been taught even the rudiments of the art, offer themselves to the public and the profession as nurses and midwives. In this country at least, a great step has been taken in the right direction by the admission of such women as desire it to tuition in the General and Lying-in-Hospitals. We find repeated in every Gazette an official invitation for pupils at one or both of these Institutions, on what must be considered, for the object in view, very liberal terms. Instead of the women having to pay a premium in consideration of the benefit conferred on them, they are offered Rs. 15 a month for Europeans and East

Indians, and Rs. 10 for Natives, volunteering as pupils in the General Hospital, and Rs. 7 a month when they elect to study in the Lying-in-Hospital alone. We cannot but look on this action on the part of Government as most benevolent and beneficial, for, we believe, they are thus conferring a great blessing on the country at large. We have now in Madras a number of well trained and competent women, who earn a very fair income by nursing the sick and attending midwifery cases. These women have already begun to spread themselves, and take up their residence in Mofussil towns. No doubt the supply at present is not equal to the demand; but that by a sort of natural provision is sure to improve as time goes on. Thus we have little doubt that, in a comparatively short time, all the principal Mofussil towns will be as well supplied as Madras now is; and the "up-country" doctor will seldom experience any difficulty in procuring a trustworthy nurse to carry out his wishes and instructions so far as the European and East Indian population is concerned. This is well; but there is a great deal more wanted. What is most urgently required is a diffusion of medical knowledge among the natives of the country. How many men, women, and children die annually from purely preventible causes we do not know; and we suspect it is a question that would puzzle even the Registrar of deaths. It is perfectly impossible that in every tiny hamlet, on the distant slopes of hills, and in districts like Wynaad, Coorg and Ganjam, Government can keep up numberless well ordered hospitals with a duly qualified apothecary and several well instructed dressers, all under the daily supervision of a diplomaed surgeon. Even were it possible thus to bring medical aid to the very doors of the people, we should not have gained our object. The people of the country, very unreasonably no doubt, have a perfect horror of "going to

Hospital." It is difficult to fathom all their crude ideas on the subject; but we find the Brahmin declining to go for the sake of his caste, the Mussulman woman hindered by her gosha scruples, and one and all asserting that these European doctors are really human devils ever ready to burn, cut, probe, or amputate. Time may perhaps enable us to scatter hospitals broad-cast over the land; time may perhaps obliterate, or at least weaken, the vulgar prejudices of the people; but we most emphatically assert it will indeed be a work of time. Meanwhile how can we best help these thousands—aye millions—of people, our fellow subjects and fellow creatures? There is no doubt that where the doctor, the apothecary and the dresser fail to gain admission, a woman, would be gladly welcomed. It is so here in Madras. High caste Brahmin ladies accept most gratefully the aid of our midwives. We do not however think that our European and East Indian nurses are exactly the agents to use in the duty of carrying benevolent aid to the widely scattered many of the country, and that for more than one reason. It is true that a rich native will occasionally pay handsomely for services which have procured the safe and happy advent of the son who is not only heir to his wealth, but whose birth is inexorably necessary to save the father's soul from the torments of "*Put.*" These are however exceptional cases. Up-country especially there are many needing aid who cannot afford to pay much for it; and there are many districts in which a European or East Indian nurse or midwife could not make enough out of her hard work, on which to live in anything like comfort and decency. But where a horse will starve, a sheep or goat may live in luxury: a native woman, with her few and simple wants, will earn enough to keep herself and family in comfort where the European or East Indian, needing animal food, good clothes, and good

shelter, must gradually perish. Another reason for endeavouring to obtain a large supply of trained native women as midwives and as nurses of the sick, is that they would be more welcome among a large proportion of their fellow country people. They should be of all castes, Mussulmanis, Brahmins, Chatryas, Sudras, and Pariahs. Then we should have a chance of giving efficient aid to all. This is the object we have in view—how to attain it is a somewhat difficult task. Some natives do already come to our schools of nursing and midwifery; but their numbers are altogether inadequate to accomplish the great object we seek to effect. Perhaps one consideration that prevents native women from coming forward as pupils is the fear that when they have learnt their profession, it will be nearly useless to them. European ladies prefer the ministrations of their own countrywomen when practicable, and the chances to native women of getting a good practice among their own people are not sufficiently encouraging, to induce them to undertake so much labor and study. Would it not be possible for Government to take those that pass the required examinations with credit into their service, and to attach them, as a temporary measure at least, to the various District, Jail, and Municipal Hospitals on a small monthly salary? They might be made worth their keep by being appointed to wait on, and attend to, the inmates of the female and lying-in wards. They would thus be supported for a time out of the public money, until they established a connexion in the surrounding country, and were thus able to earn enough to support themselves. We have endeavoured to set forth, very feebly and imperfectly we fear, a scheme which may be promoted and made to bear fruit in India for the education of women desirous of medical knowledge and anxious to turn that knowledge to account. If it be practicable to have classes for the instruction of those

ladies who are desirous to learn, and to hold out some slight pecuniary inducement to the native women of the country to study our systems of Midwifery and Nursing, we shall not have written in vain. The gain to the community at large will be great ; and the labours and anxieties of the professional man will be certainly lessened, when he knows that the mother, wife, or nurse is capable of understanding and intelligently carrying out his instructions. The foundation of a reasonable system of medicine will be laid among the natives ; a good field of industry will be opened to poor women, whether East Indian or European ; and the women of the higher classes who study the higher branches of medicine, will reap the reward of their toil in the good they will be able to accomplish, and in the deeper appreciation they will acquire of God's power and wisdom in Creation. We have heard it said, " the undevout astronomer is mad"—mad too must he be who can study all the wonders disclosed in the study of medicine, and not feel an ever-deepening devotion to, and reverence for Him, in wondering awe of whom the Psalmist of old exclaimed—" O Lord how manifold are Thy works ; in wisdom hast Thou made them all !"

THE NEW MEDICAL FUND.

WE learn with satisfaction and we have much pleasure in bringing to the notice of the junior members of our Service the news received during the past month regarding the establishment of a New Fund, sanctioned by the Secretary of State for India, for the Staff Corps and for the Ecclesiastical and Medical Departments. The percentage to be paid to widows, it is said, will be determined by the Govern-

ment annually, so that a fluctuation in the amount of payments must be anticipated. With this exception, the New Fund, it is reported, will be of advantage to those members of our Local Service who have been involuntarily debarred from a participation in the privileges of the Old Fund. We are glad to observe, however, that the Government is alive to the desirableness, nay, to the necessity of the Fund to the members of a Service who find it no easy matter to reserve something of their small earnings for a rainy day. We conclude by trusting that there will be no delay in opening up the Fund.

REVIEW.

OWING to the delay occasioned by the substitution of simpler forms when the "elaborate tables hitherto annexed to the report were nearly completed," the Annual Report of Civil Dispensaries for 1870, comes before us for review, nearly two years after date.

The Inspector General I. M. D. opens his report by referring to the cyclone which occurred at Vizagapatam on the night of the 4th November 1870, and quotes the following passage from the report of the Civil Surgeon who states that there was a lull in the storm, of 10 minutes' duration between 2 and 3 A.M. of the 5th November, during which interval the following appearance was observed :—"Luminous appearances, like balls of fire, were seen passing through the air from the N. E. to S. W. direction and *vice versâ,* and near the Regimental lines some of the people there, unhoused drummers and their families, saw one of these balls fall and burst upon the road without explosion or sound, throwing out thousands of sulphurous-like sparks, and fortunately without touching any of the inflammable roofs of houses."

During the year 1870, twelve hospitals and dispensaries were in operation in the Presidency town and sixty-four in the Mofussil. The Inspector General comments on the insufficiency of these institutions for the wants of 25 millions of people, and hopes that, under the operation of the Towns' Improvement and Local Fund Acts, the benefits of European Medical Science may be extended to every town, of any importance, in the Presidency. We cordially sympathize with this aspiration, and earnestly hope that the day is not far distant when it may be realized. The beneficent administration of the Government could not be better illustrated than by the establishment all over the country of dispensaries in which the suffering poor may obtain relief, sympathy and care, at the hands of those who have been trained at our local medical schools. We know that the Inspector General has done much to induce the various municipalities to employ well-educated medical men, in whose capacity, training and experience, confidence could be placed in cases of emergency; but we very much regret to

hear that various municipalities have deliberately preferred men who, in our opinion, are totally unfit for medical charges of any kind. Our readers are doubtless aware that the Medical Colloge consists of three departments.

A.—Senior, in which students qualify, by five years' study for the degree of M. B. They pass the F. A. test, prior to entering on their Medical studies.

B.—2nd Departmemt, in which young men qualify for the grade of Assistant Apothecary, by three years' study, after passing an entrance examination, whose requirements are not as high as the matriculation standard.

C.—Junior Department, in which lads qualify for the grade of Hospital Assistants, by two years' study. These pass an entrance examination of a very elementary character.

Class A. has, unfortunately, no outlets. This Department is so poorly represented, that it has little more than a nominal existence. We trust we may be pardoned for expressing a hope that Government may soon see the unwisdom of spending much money in turning out a few highly-finished agents and then setting them aside, with nothing to do. This is part of the educational system of the country.

Class B. makes, on the whole, good medical subordinates. The more intelligent and trustworthy among them are occasionally entrusted with minor medical charges.

Class C. is intended to be Hospital Assistants and nothing more. Their training fits them for little else than routine hospital work, under the eye of a superior.

It is truly a matter of regret that municipalities should, on the score of economy, insist on employing men of Class C, seeing that they are, both by preliminary education and professional training, unfit for the responsibilities of a medical charge. It is clear that municipalities, in selecting medical men for their dispensaries, are influenced solely by considerations of economy, and it is, therefore, not to be wondered at, that they have turned a deaf ear to the judicious advice of those who are desirous of providing them with a better class of practitioners. A man of the Hospital Assistant class would cost about 30 Rs. a month, whereas one who has received a training equal to that of an Apothecary, would cost three times as much. The question of selecting suitable men for the medical charge of Dispensaries to be

opened out under the Local Funds Act is an important one, and deserving of the immediate consideration of Government. This point should be settled, before these institutions pass into the hands of men who are unfitted, by professional training, for such an important trust. As pecuniary considerations stand in the way of a right settlement of the question, perhaps Government might be induced to give a helping hand. By the system of grants-in-aid, Government has shared the cost of education. A similar system, applied to Hospitals and Dispensaries, would probably induce municipalities to engage the services of better qualified men, of men who are competent to act in cases of emergency and to give sound advice in all matters relating to sanitation. Properly trained medical men can be made use of, in so many ways, for the good of the country, that it would be a pity to lose such an opportunity of doing good on a large scale, by the selection of a very inferior order of practitioners, deficient in general as well as professional knowledge and of inferior social position. Surely Medicine and Hygiene have as much claim to the support of Government, as the education which is scattered broadcast over the land, an act of kindness to the masses which has not only not won the hearts of the people, but has helped to excite considerable discontent in the minds of those who have attained to academic honours, with little or no cost to themselves. The help we now solicit for Medicine and Hygiene will, on the contrary, do a vast amount of good and secure the gratitude of the masses. The Madras Medical College is capable of supplying the country with a class of reliable medical men; but its teaching power, we regret to say, is mainly expended in training men for inferior and subordinate positions in the civil and military branches of the service.

After the Inspector General's covering letter, follow extracts from the reports of the various officers who were in charge of Dispensaries during the year. Although these reports show the increasing usefulness of Dispensaries and their growing appreciation by the people, we can collect from them many evidences of the oft-repeated statements that our native fellow subjects are only too ready to avail themselves of the benefits of the European system of medicine; but that they are unwilling to pay for the same, and that natives will subscribe towards a Dispensary, only when the resident European officials set an example.

The Hospital Assistant at Anantapoor says, "I regret to say that, owing to the departure of all the European residents from the station who patronized this charitable institution, the amount of subscriptions has fallen off a great deal, and the civilized native inhabitants of this town have withdrawn their subscriptions, simply because there being no proper stimulus for them to co-operate with their European brethren. I consider that the working of the Dispensary was satisfactory in all other respects, except this important defect."

Surgeon Major Walter says of the Berhampore Dispensary: "Through an appeal made by the Tahsildar, the Zemindar of Kullicot has been induced to pay up his promised subscription, amounting to 200 Rupees, the Zemindar of Chinna Kimedy Rupees 105, and the Zemindar of Jarada Rupees 50; but I am sorry to say the natives generally are lamentably indifferent concerning the welfare of the Institution; only a very few subscribe, and they generally for sums under one rupee; even with the above liberal subscription from the three zemindars, the native share is only thirty-eight per cent. of the whole amount subscribed, against sixty-two from the European gentry who subscribe most liberally."

Surgeon-Major Clementson says of Chingleput:—"This Institution is but poorly supported, so that but few in-patients can be admitted, except those who can feed themselves. The average monthly subscription for the past year has been Rupees 13-6-0. The Collector was good enough to contribute the sum of Rupees 156-4-0, being half of a sum placed at his disposal by the Famine Relief Committee."

With regard to the Dispensary at Gooty, we read: "The subscriptions from the native residents amounted to Rs. 106-14-0, contributed chiefly by several of the Government officials of the different Cutcherries in the place and by a few vakeels. The subscription list does not contain the name of a single merchant or trader in the place, of whom, however, there are but few. Yet it is an undeniable fact, though not directly connected with this subject, yet bearing upon the point, that money, amounting individually to hundreds and even to a *thousand* and upwards, was squandered only a few months back, during the celebration of the Dusserah festival, by some of the wealthy men of the place, for the mere gratification of listening to the rapturous strains of a native *prima donna* brought up expressly

from Madras to Ghooty for the occasion, while the figures in the subscription list individually simply represent units. Moreover, while the sick poor resort to the Dispensary for relief from villages at a distance from Ghooty, it is found that nothing is contributed towards the support of the Institution by the wealthier inhabitants of these villages."

Assistant Surgeon Tyrrell says of the Guntoor Dispensary: " The native subscriptions are very small, and have much diminished during the last two years. This is, no doubt, owing to the increased taxations."

Want of space prevents us from making quotations which shew the indifference of the people to sanitary improvement, and for the same reason, we regret our inability to adduce evidence of the fact that many of our locally trained men are doing good work, both as medical practitioners and sanitarians. If our readers will excuse the peculiar English of the Hospital Assistant at Chellumbrum, we shall quote what he says of the sanitation of the town, in proof of what we have said:—

"The usual sanitary arrangements, as I have always complained, are only made as a temporary measure during the festivals; that over, the town relaxes into its accustomed nuisance and becomes very well adapted to promote epidemics of all kinds. That neither the authorities nor the influential rich towns-people have taken it in their heads to apply for the introduction of a regular Municipality, is a fact that is to be much regretted. On the other hand, they have, as I am led to believe, used their influence in keeping the probability of its introduction as far off as they possibly can. This town is large enough to require district sanitation. There are upwards of 100 streets with no less than 15,000 inhabitants. If this town is not worth having a Municipality, I do not know if Mayaveram, a hamlet in comparison to this, is. They have a ridiculous contrivance for removing filth from some public streets. The inhabitants are compelled to remove their dung hills from the streets to their backyards; there to rot in worms, or to burn them at their very doors, thus to make the vapour to diffuse itself in the atmosphere and be the fruitful source of many infections. This course the Magistrates cannot help but enforce, there being no resource from which the expenses of their conveyance out of town can be defrayed."

MEDICAL MISCELLANY.

(Continued from page 400.)

The mode chiefly in use for the administration of Ether has been that mentioned in the latest and in the majority of the works on Surgery from America* ; by using "a thin and hollow sponge, which is large enough to cover the mouth and nose, and which is first wrung out of warm water, and saturated with Ether poured on in quantities of not less than half a fluid ounce; this is laid on, and a cone of pasteboard or light wood superimposed. The first few inhalations should be made when the sponge is a little distance from the face; but as soon as the anæsthetic influence has begun, the sponge may be more closely applied, and need not be removed except when necessary to apply more ether. Of course if, as will sometimes happen, the patient be seized with a fit of coughing, or, from having eaten a meal immediately before the operation, he should begin to reject from the stomach, the sponge must be withdrawn until tranquillity is restored. *If the patient breathe freely he cannot be too rapidly Etherized, and there is no danger as in the case of Chloroform from the vapour being too concentrated.* Enough air is drawn through the interstices of the sponge and the perforation of the cone to obviate any risk from this cause, and rapid Etherization is much less apt to cause pulmonary congestion than slow inhalation of the vapour, prolonged through considerable time."

Such are the general directions given by a surgeon who avows that he prefers Ether.

I select, in contrast, the directions given by a surgeon (Dr. Gross), who prefers Chloroform. He observes as follows :—

ETHER.	CHLOROFORM.
During the process of Etherization the patient may sit up with impunity or be recumbent as may suit the convenience of the operator, no injury resulting from even a protracted maintainance of the erect position.	During the process of Chloroformization the patient must lie down, and not only so, but the head and shoulders should be depressed, owing to the *greater* difficulty of maintaining the circulation of the brain through the influence of the heart's action.

* Asshurst.

ETHER.	CHLOROFORM.
The admission of air is comparatively of little consequence.	The importance of having an abundance of air during the inhalation of an article so *potent* as Chloroform is self-evident: it is absolutely essential to the safety of the patient.
The inhalation should be commenced with not less than half an ounce, and diligently maintained till full anæsthetic influence is produced, which usually requires a considerably longer period.	The inhalation should be gradually, and not hurriedly, effected, time being allowed to allow the accommodation of the system to its influence, avoiding the shock which might otherwise result to the heart and brain. From six to eight minutes should be spent in producing its full effect.
No special attention need be paid, as the fluid possesses none of the poisonous (!) properties of Chloroform.	The assistant having the charge of the process must give it his earnest and undivided care; and as soon as the inhalation has been fairly entered upon, one of the attendants should sedulously watch the state of the pulse the respiration, and the countenance.
EFFECT.	EFFECT.
At first a short cough is usually provoked. This soon subsides and the system gradually lapses into a *calm*, *quiet* condition, attended with muscular relaxation, closure of the eyelids, and mental unconsciousness followed in many cases by stertorous breathing.	This may be divided into two stages:—1st. That of excitement, when the patient struggles and cries. The eye has a wild, staring expression, the face is flushed, and pulse preternaturally quick. This varies much in degree and duration. The second stage then ensues, and the individual gradually lapses into unconsciousness. Feeling and intellect are suspended, and if this state be carried further, coma will ensue, and the appearance be apoplectic. As yet all is safe; but a few more whiffs, and an important link in the chain of life may give way, and the patient be sent into eternity.

The writer lays considerable stress on the importance of using caution, and good Chloroform, and ascribes the *good luck* he has so far had in his practice (though he gives one instance of a narrow escape, where artificial respiration was necessary) to the careful observance of these conditions.

On contrasting the comparative merits of the two anæsthetics as described by him, "*good luck*" is not indeed an exaggerated term when applied to the use of an agent so fraught with danger, and when we find such a suggestive expression used by a writer of eminence, it cannot be questioned that Chloroform, with its signal dangers, has claims far inferior to Ether as a pain-destroyer, and that such a resolution as was adopted by the Massachusetts Hospital—"that the exclusive use of Ether should be an absolute law of the Institution"*—was most advantageous for the patients.

MODE OF ADMINISTRATION.

Having referred to the diversity of opinion as to admission and non-admission of air during the process of Etherization, I may state that I adhere to the general correctness of the latter view, and cannot adduce better evidence than the following practical illustration:—

I etherized a medical man, aged about 24, as intelligent and fine a specimen of a vigorous young man in full health as well could be, and who was in agony from toothache. I requested him to notify his sensations as far as possible, and to conduct the administration to himself, as long as he had sense to do so, and to intimate his wants. After the few first inhalations he found it best to desist a little till the throat became somewhat accustomed; he then felt a benumbing soporific influence and called out "more," "more," "delicious," "delightful feel;" he sank into insensibility, the dentist drew the tooth, and he gradually returned to consciousness in a few minutes.

In this muscular young man there was not the slightest spasm, or any unpleasant symptom; there was not the slightest irritability of stomach, and within one hour afterwards he enjoyed a capital dinner. His description from personal observation includes the general rules to be observed—of avoiding irritation at the very commencement, and of then passing on the influence, to the exclusion of air in a great measure; when this is done there is little apprehension of spasm, or sickness, or of delay.

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* Neligan's "Medecines." By MacNamara.

NOTE —August 9.—I operated on four patients to-day—one was etherized, had two tumours of the leg excised, and was in bed again within ten minutes; another was etherized and had a tumour removed in eight minutes; two ohers underwent the process in about from six to eight minutes—nothing could possibly have been more satisfactory.

In conducting Etherization the following points should be attended to:—

The patient should not have eaten any meal within three to four hours. A glass of wine, or a cup of tea may perhaps be allowed within two hours of the Etherization, unless in cases where stimulants are urgently necessary. If this simple rule be attended to, the instances will be indeed very exceptional, in which sickness of stomach will occur. In eye operations, it is needless to remark, exact precautions should be taken.

The patient must be freed from any tight clothing, and from stays or strings which might in any way impede full respiration. The recumbent position is best suited, with the head fairly raised on a pillow; lying on the *side* I find better than on the back, but it is matter of no very great importance; patients can also be etherized equally well when sitting, but the relaxation of the muscles supporting the head and body leads to inconveniences, and the recumbent position is certainly preferable in all cases.

The inhaler is then charged with from 1½ to 2 ozs. of pure anhydrous sulphuric ether,* which should be poured in slowly. The mouth-piece is then applied gently over the mouth and nose. The patient may hold it and keep it applied for the first few minutes; this lessens any nervousness about its use, and the mouth piece can be taken away at pleasure so as to moderate the inhalation and accustom the throat to the vapour. The patient should be directed to cough or blow out, and as each such action is followed by a full inspiration; such effort aids the breathing in of the vapour very materially, and I am convinced the more freely and fully the Etherization is pressed till insensibility is attained, the better for the patient. After two or three minutes any irritation will be passed, and the breathing will be carried on regularly. The mouth-piece may be then taken charge of by the administrator, and the patient's hands laid down, the breathing will gradually become full, and the stage of insensibility steadily and equably ensue. This may be pushed, even till stertorous breathing ensues, which need cause no alarm, but as perfect insensibility is attained without it, it is not necessary further to overwhelm the patient.

The administrator will now suit himself to the circumstances of the case: the patient's condition is altogether in his hands, should there be signs of the ethereal influence passing off, he can pour in a little more, and should the contrary appearances arise, he can, by opening the funnel, allow air to be more or less freely admitted into the inhaler, or he can withdraw the mouthpiece temporarily.

The mouthpiece being usually made of elastic tubing should

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* That prepared from methylated spirit, of 720 sp. gr., answers well.

be pressed firmly on the face, or be slightly moulded to the nose if required; it is well after the few first inhalations, to apply it equally and closely, thus Etherization will be attained more rapidly and satisfactorily.

It is best to preserve silence, and not encourage the patient to speak.

If attention be directed to the flexible diaphragm of the inhaler, its motion serves as an index, and an estimate can be always formed as to the condition of the respiration, and how far the patient from timidity or otherwise, is not fully respiring, or the administrator is imperfectly applying the mouthpiece and allowing the escape of the vapour.

Should it so happen that the stomach be sick, and any food have been recently taken, the head should be turned on the side, and the chin slightly depressed, to favour the expulsion of the food.

The ascertained ratio of only one accident been known to occur in 23,204 cases of Ether inhalations, puts the probability of any complication beyond notice.

The operation over, the patient may be allowed to recover gradually, and if the face be sponged with cold water, and the patient soothed when emerging from the influence it will be best.

The time occupied in producing insensibility by the inhaler varies a little, and some patients seem to resist somewhat more than others. I have seen very many thoroughly insensible in four minutes—others in five; but if eight minutes be taken as an average, it will be found that few cases indeed will exceed it, while the vast majority will fall short of it. *I refer to cases where the Inhaler is used*, as I have comparatively tested the cone and sponge with it, and find that not only is the time much longer, but the effects are far less satisfactory, both as to the temporary and after condition of the patient with the cone and sponge; or, in other words, where a free exposure to the vapour is not effected.

I must here remark that the convulsive stage produced by Chloroform inhalation is not seen where Etherization is used by the Inhaler, save in *very* rare instances; nor is sickness of stomach usual, if the simple precaution be taken of not allowing any meal to be given within a few hours of the operation. Indeed, the result of Etherization cannot be better expressed than by the quotation I have given above from a writer who advocates chloroform:—

"The system gradually lapses into a calm, quiet condition, attended with muscular relaxation, closure of the eyelids, and mental unconsciousness."

When, in addition to these perfect results, it is remembered that it is proved by the hard logic of statistics that *Ether is the safest of all anæsthetics, and eight times more so than Chloroform*, I can hardly conceive that anything further is required to prove its superiority to all other agents.

THE ETHER INHALER.

is constructed so as to collect the Ether vapour rapidly, and have it inhaled through the flexible tubing, which, with the mouthpiece, suits any position of the patient.

The respiration is allowed to be carried on freely by means of an india-rubber diaphragm at the top of the instrument, which, by corresponding with each respiration, is self-accommodating. The internal arrangement is such that ample provision is made for the collection of the Ether vapour.

When about being used, pour in *gradually* two fluid ounces of anhydrous sulphuric ether, if for an adult, but proportionably less for a child or female, and apply the mouthpiece to include the mouth and nose. Should the patient not yield in four or five minutes, pour in another two ounces gradually—more will seldom be required, except during some very prolonged operative procedure. It is desirable to keep the inhaler in the erect position as much as possible.

I am persuaded that any practitioner who employs Ether in the manner I have described will be completely satisfied with the results.

He will also be freed from the incubus of the

DANGERS OF CHLOROFORM.

He can conscientiously advocate with his patient the employment of an agent which has been proved to be, though hitherto used in an imperfect manner, the

SAFEST OF ALL ANÆSTHETICS.

He will avoid responsibility and the qualms of conscience which in case of a fatal issue from using the more dangerous remedy, Chloroform, must result to him, indicated in the truthful and touching remark of a practical surgeon when relating the fatal effects and dangers of Chloroform which he himself witnessed :—

"The use of Chloroform is a serious business, involving as it does the issues of life and death—how serious few can realize, except those who have seen one or more fatal cases;" and "witness that sad sight when a person lies dead before them, who but a few minutes before was in full possession of life and strength.*"—*Medical Press and Circular.*

Traumatic Hæmorrhage of the Rectum. By WILLIAM BODENHAMER, A.M., M.D., New York.

PROFUSE or alarming hæmorrhage of the rectum, consequent upon surgical operations on its inferior extremity, is by no means a rare occurrence. It is often a very grave affair, requiring

sometimes the most prompt and energetic measures for its arrest; and if not speedily arrested, leading ultimately to great exhaustion, syncope, and even death. When it is external, or nearly so, it is easily managed; but when it is entirely internal, owing to the narrowness of the anal canal, and the considerable distance up the same of the bleeding wound, it is difficult to get at it; the natural warmth, too, of the intestine itself favors the bleeding; and in consequence of the morbid condition, sometimes, of the blood vessels themselves it is often persistent and difficult to suppress. Surgical hæmorrhage of the rectum, then, is to be dreaded, as well on account of the several discouraging circumstances already named as on account of its being so very insidious, neither the surgeon nor the patient being for some considerable time aware of it, no blood escaping externally to indicate it, or to cause alarm.

The source of the bleeding is generally from one of the hæmorrhoidal arteries, yet it is very often almost entirely venous. I have seen large quantities lost in a few minutes after the division of a hæmorrhoidal vein. The arteries of the rectum are more numerous and of larger size than in any other portion of the intestinal canal, and being chiefly distributed to the posterior part of the rectum, some of their branches may be divided in the operation for anal fistula, sometimes causing serious hæmorrhage; indeed operations on the ano-rectal region are almost always attended with more than ordinary bleeding. There is sometimes an enlarged and varicose condition of the proper veins of this region, especially in old persons and in those who are suffering from diseases of those parts—such as anal fistula, rectal stricture, hæmorrhoids, stone in the bladder, etc. In such cases there is generally great induration of the parts, from inflammatory deposits, involving more or less the hæmorrhoidal vessels themselves; and consequently when such vessels are divided they are, from this cause, unable to retract and contract, and the result is alarming hæmorrhage. Several instances of this character have fallen under my own observation.

In rectal hæmorrhage the blood usually flows into the inferior and middle portion of this intestine, from which, however, it may sooner or later be expelled, either in a semi-fluid or coagulated state; or it may accumulate in large quantities in the superior portion, and in the sigmoid flexure of the colon by regurgitation. It is surprising with what persistency the bleeding continues in some of these cases, even when no large vessels are implicated.

As before observed, this accident often follows the operation for fistula in ano, especially when a sinus has been divided high up. It is also very liable to follow the excision of hæmorrhoidal or other tumors of the anus and rectum by knife or scissors. Serious hæmorrhage is sometimes the result of dividing a stricture of the rectum, when high up. It often follows the division

of the sphinctores ani muscles for anal fissure, and the operation for perineal artificial anus.

Many patients have perished from rectal hæmorrhage, as the records of surgery show, and many more have perished from this cause of whom no record exists. Some of these fatal cases were doubtless lost, either through ignorance on the part of the operator of the proper measures to be adopted in such a case, or through a want of presence of mind and firmness in him, to insist upon, and promptly to execute the appropriate means. I could here cite numerous examples to prove how alarming, how dangerous, how injurious, and how fatal this hæmorrhage has been.

Such was the constant dread of rectal hæmorrhage that the celebrated Baron Dupuytren, who invariably removed hæmorrhoidal tumors with the scissors, never neglected the precaution of either at once applying the heated iron to the wounded parts, or leaving an assistant with the patient in order to arrest the bleeding by the same means should it occur. Indeed this distinguished surgeon recommended the actual cautery to be applied to the wounded surfaces in every case immediately after each operation of the kind, as he found its application absolutely necessary in nearly every patient upon whom he operated, in order to arrest frightful hæmorrhage; and for this purpose had special cauteries constructed.—(*Lecons Orales de Clinique Chirurgicale.* Tome i., p. 357. Paris, 1832.) The same dread of hæmorrhage induced Sir Astley Cooper to reject the use of the knife and scissors altogether in the removal of hæmorrhoids, and to adopt instead the use of the ligature. This great and good surgeon was candid enough to admit in his lectures the loss of several of his patients from hæmorrhage, consequent upon excision of hæmorrhoidal tumors.—(*Surgical Lectures.* By Tyrrell; p 301. Philadelphia, 1839.) The late Sir Benjamin C. Brodie says he nearly lost three patients from rectal hæmorrhage, following the excision of hæmorrhoidal tumors.—(*Clinical Lectures on Surgery*, p. 314. Philadelphia, 1846.) The late able and distinguished Mr. Syme considered that serious and fatal hæmorrhage was exceedingly liable to follow excision of hæmorrhoids.—(*On Diseses of the Rectum*, p. 77. Edinburgh, 1854.) Mr. Fergusson, with the same dread of rectal hæmorrhage before him, says: "I have an equally strong opinion as to the impropriety of cutting internal piles with the knife or scissors. There may be such an internal bleeding as to endanger life, as I have myself experienced; yet while I admit that such a practice may be followed again and again without mischief, I would earnestly caution the young surgeon against rashness in this respect. In one instance, having become emboldened from using the scissors with impunity in a variety of cases, I nearly lost a patient from hæmorrhage into the rectum, from a small portion of a wound in the mucous membrane, which passed within the sphincter. On cleaning the rec-

tum from a large collection of blood, and applying ice, the bleeding stopped; but probably this was as much the result of the faintness from loss of blood as from any such surgical means that were adopted."—(*A System of Practical Surgery*, p. 549. Philadelphia, 1853.) The late Dr. Bushe says, "that excision of hæmorrhoidal tumors not likely to be attended with hæmorrhage, I deny, for I have performed the operation several times, and after it, have had to tie up arteries, plug the rectum, and in one instance to apply the actual cautery. Indeed, I so nearly lost two patients, that when left to my own choice I no longer have recourse to this operation."—(*A Treatise on the Malformations, Injuries and Diseases of the Rectum and Anus*, p. 183. New York, 1837.) The following pertinent remarks upon this subject are from the able and distinguished Professor N. R. Smith, of Baltimore: "Excision of hæmorrhoids is the expedient that first presents itself. But for one circumstance—the danger of hæmorrhage—this would be the shortest and most effectual expedient. This has been in times past much practised, and often with success. But the occurrence of many fatal cases of bleeding has deterred the modern practitioner. Sir A. Cooper's cases are well known, and were all surgeons as candid, we should have many more such beacon lights. Were the bleeding part so located as to be accessible to our remedies, there would be no risk; but when a hæmorrhoidal tumor has been cut away with the knife, the wounded surface retires within the sphincter and is reached with great difficulty."—(*Baltimore Medical Journal*, vol. i., p. 9, January 1870.)

The same dread of surgical hæmorrhage of the rectum led to the invention and the adoption of the *ecraseur* for the removal of hæmorrhoidal tumors. But *ecrasement* by no means always insures against alarming hæmorrhage of the rectum sooner or later after such operation, as the records of surgery abundantly prove.

With regard to the incision of hæmorrhoidal tumors by knife or scissors, particularly if they are large and situated above the sphinctores ani, and a vein has been freely opened, the operator cannot expect anything but a free and copious discharge of blood; the structure of the portal veins facilitating such a sequel to the operation. Attention, however, to the different conditions of the affection, and the relations of the tumors to the anal sphinctores, will always enable the surgeon to be prepared for the hæmorrhage, and to have his means always in readiness to arrest it in case it should follow a properly considered and well-executed operation. In consequence of inattention to these pathological conditions and measures, the worst results have followed, as well as may again hereafter follow.

Were the measures, however, for arresting surgical hæmorrhage of the rectum as well understood and appreciated as they by all means should be, or as those are at the present day for

suppressing such hæmorrhage generally, few fatal cases, in my opinion, would ever be likely to occur, whether either knife or scissors were used.

Symptoms.—Besides the characteristics which are common to all internal hæmorrhage, that of the rectum has peculiarities which enable it to be readily distinguished from all others. In the largest number of instances from one to four hours elapse after the operation before the symptoms indicating rectal hæmorrhage begin to manifest themselves. The patient, after having recovered from the excitement and fatigue of the operation, and perhaps after having been comparatively comfortable for some time, has now a tendency to drowsiness, or becomes anxious, agitated, and restless; he has tingling of the ears, swelling, tension, and sensibility of the abdomen, especially in the left iliac fossa; and is sometimes conscious of a sensation of warmth or heat extending gradually along the bowel from below upwards; has perhaps colic pains, with a painful kind of tenesmus and frequent desire to evacuate the bowels with more or less inability to do so; his pulse is intermittent or irregular. Sooner or later, unless relieved, other and more marked symptoms supervene. There is now a tendency to stupor, and a deadly paleness overspreads the patient's face, which, together with the whole surface of the body, is often bathed in cold perspiration; his respiration becomes hurried, difficult, and anxious; his pulse small, frequent, and almost imperceptible; he sometimes has nausea and vomiting; is seized with rigors, spasms of the extremities, and vertigo. Such phenomena cannot well be misinterpreted by the surgeon, inasmuch as they plainly indicate that alarming hæmorrhage is going on within the rectum, and that the blood in the mean time is accumulating in the colon. The patient may die without even discharging the contents of the bowels; but in most instances the tenesmus becomes so great that he makes efforts to stool, and evacuates a large quantity of clotted blood, and whilst doing so, often faints, which, for the time being, opposes a barrier to the further effusion. More frequently, however, when the intestine is relieved of its contents, especially if this has been effected in the recumbent or horizontal posture, a sense of general ease and comfort is the immediate consequence, and the only well-marked remaining symptom is that of great prostration. Should the surgeon now neglect to avail himself of this precious truce in arresting the bleeding promptly, the symptoms will be almost certain to reappear speedily, and if possible more alarmingly than before, and the patient's previous restlessness will often be followed by feelings of despair; and the depression consequent upon this will sometimes be such that he will even pray that death might come to his relief.

Suppression of the Hæmorrhage.—The measures for arresting rectal bleeding differ, and may be comprised in the following:—

1. *Ligation*; 2. *orsion*; 3. *Cauterization*, 4. *Compression*; 5. *Styptics*; and 6. *Cold Applications*.

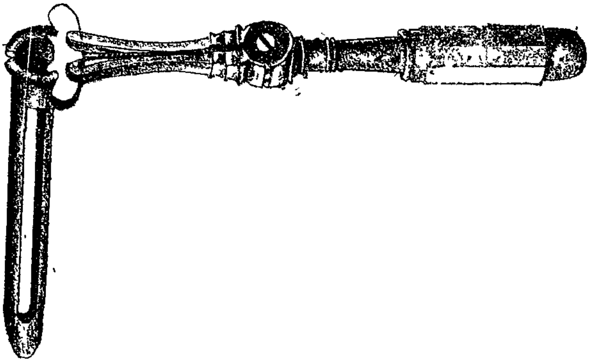
The ligature, twisting, and the actual cautery, are the chief measures, however, upon which to rely in alarming cases But as cauterization with the iron is almost certain to be followed by high inflammation, if not by sloughing and contraction, it should be employed only as a *dernier resort*. Torsion is as efficient and as erliable as ligation, when the vessel is small and sound It is especially indicated in cases in which the bleeding is so deep that the vessel cannot be tied.

Should the operator entertain the slightest suspicion that internal rectal bleeding is taking place, he should at once direct the patient to evacuate the bowel if possible. Should the patient, however, fail in accomplishing this by the natural efforts, an enema of one or two pints of cold water, or salt and water, should be administered, and if necessary, repeated every few minutes, until the rectum becomes so stimulated as to completely expel its contents, which, if hæmorrhage has been going on, will generally be found to consist of a greater or less quantity of coagulated blood. The patient thus by his straining efforts might perchance force down the bleeding wound sufficiently low so as to be seen; should he fail, however, in this, in consequence of the wound being too high up, the operator should then endeavor to pull down the rectum gently, by means of a vulsellum or pronged hook inserted into the submucous tissue, until the bleeding point was fairly brought into view, and then the vessel either ligated, twisted, or cauterized, as he might select. This method sometimes happily succeeds. The great difficulty, however, in some instances, is to ascertain precisely whence the bleeding proceeds, especially when from small vessels and at several points. Nothing but a minute examination of the interior of the rectum by means of a proper speculum will enable the operator sometimes to detect the bleeding point or points, unless the hæmorrhage proceeds from a large vein, or from a considerable artery, as indicated by the peculiar jet or scarlet color of the blood.

Failing by the above process, and with the intention now of employing the speculum, the rectum and bladder both having been previously emptied, the patient should be placed upon his left side, on the edge of a bed or table, in front of a strong light; the back and hips as near the edge as possible, the pelvis elevated, the head and shoulders depressed to favor the action of the heart and the return of the blood to the brain, and the thighs flexed upon the abdomen. A piece of rubber or oil-cloth, if at hand, or something else, should be placed under the hips, so as to protect the bed from the fluid discharges, and a vessel placed at the bedside to receive them. It is also important that a free access of air should be provided in the room. The patient being in this position, the operator should intro-

duce into the rectum the tri-valve trellis speculum (Fig 1).

Fig 1



which I devised a number of years ago especially for this purpose. This instrument is quite small when closed, and easy of introduction, and when introduced admits of extensive expansion by simply revolving the handle. By it, when the blades are widely expanded, all the sides of the interior of the rectum are at once brought into view; and by the aid of a sponge mop the exact source of the bleeding may be easily discovered. The speculum, thus revealing the true state of the case, gives the operator great advantage in controlling the hæmorrhage, by giving him confidence, courage and hope. He sees when the effusion comes, and makes an estimate of the quantity being lost, by what passes out through the opened anal orifice, as no internal accumulation can now any longer take place. If he should thus find that the effusion is not very great nor alarming, cold applications in the form of irrigation might be employed before resorting to ligation. This generally arrests ordinary, and sometimes even extraordinary bleeding. The iced-water should be directed through the open speculum upon the bleeding point in a *continuous* stream from a Davidson syringe. If the stream is made directly upon the wound, it has a powerful tendency to promote the contraction of the bleeding vessel, to allay pain, and to prevent inflammatory action. This course, if successful, should be continued until the hæmorrhage entirely ceases, and then the speculum should be partially closed and carefully withdrawn. If the hæmorrhage, however, is found to be rapid and alarming, the bleeding vessel must at once be tied, twisted, or cauterized before resorting to irrigation.

Ligation.—For the purpose of seizing and ligating a bleeding vessel some considerable distance up the rectum, I use instead of the common tenaculum the long and slightly curved spring forceps (Fig. 2.) which I had constructed especially. It has a sliding attachment, intended chiefly as a *porte-ligature,* lying flat

upon its upper blade, and nearly of the same length. This attachment at its distal end has a beak for holding and carrying the loop of the ligature; near its centre it is armed with two narrow flanges which partially embrace the lower blade of the forceps; and near its proximal extremity it has a rough button, by means of which the slide is projected as far as necessary for carrying the loop of the ligature, and also retracted; by these two movements the blades of the forceps may be locked and unlocked, as may be desired.

The operator, seeing the bleeding vessel through the speculum, seizes it with the forceps previously armed with a suitable silk ligature of sufficient length, and having the proper noose in the centre of it. He now projects the slide, by which movement he locks the blades, and carries the ligature to the seized vessel. He then places the locked forceps into the hand of the assistant who holds the speculum, and whilst holding both ends of the ligature in his left hand, and with a long probe in his right, disengages the noose from the beak of the *porte-ligature* and places it upon the base of the seized vessel, and when properly adjusted, tightens the knot firmly by means of Dr. A. L. Carroll's admirable *knot-tier* (Fig. 3). A second knot, if deemed necessary, may be made and tightened in like manner. When the vessel is secured the rectum should be well syringed out with cold water, and if the hæmorrhage has entirely ceased, the speculum should be carefully withdrawn, leaving the two ends of the ligature hanging out of the anus. In the mean time the patient should maintain the horizontal posture, take an opium pill, live on a milk diet, and avoid a fæcal dejection for several days.

Fig. 2.

Should Dr. Carroll's instrument not be at hand the knot may be tied as tight as necessary by a method I have practised for many years in ligating polypoid tumors of the rectum, which is as follows:—The vessel being seized with the forceps as above directed, the operator hooks one end of the ligature in the cleft extremity of the silver director or *sonde cannelée* which he holds in his right hand, whilst the other end of the ligature is held in his left, and sufficient traction made upon each at the same time as to tighten the knot firmly. In this manner a bleeding vessel may be seized with the forceps and secured with the ligature at a distance of four or five inches up the rectum; or a polypoid or pile tumor may be ligated almost as easily and as effectually as if it were at the verge of the anus.

Torsion.—If the operator prefers torsion to ligation, it can be efficiently performed by means of the spring forceps already named, or by Physick's forceps.

Cauterization.—If neither ligation nor torsion can be made available, and the hæmorrhage is alarming and threatening life, the actual cautery should without hesitation be at once employed. The cautery iron should be heated to a white heat, and applied to the bleeding vessel through the opened speculum, being very careful to seal it completely. The severe smarting pain, the constipation, and the retention of urine which follow the application of the actual cautery should be combated by proper means. To relieve the severe pain, anodynes and emollient applications must from time to time be employed. *Constipation* must be relieved by linseed enemata and castor oil; and *ischuria* and *dysuria* by tepid baths, fomentations, and, if necessary, the catheter; and the tendency to contraction, by the use of the bougie.

The cauterization may also be thoroughly effected by the *galvano-cautery* of Middeldorpff.

Fig. 3.

4. *Compression.*—This method of arresting rectal hæmorrhage is valuable, if properly applied and maintained in sufficient force. It is especially applicable to deep-seated bleeding, and in such cases, in which other methods have failed, it should by all means be attempted. It is, however, in rectal bleeding obnoxious to several serious objections:—

1. The parietes of the rectum upon which the compression is made are not firm and resisting enough to make it as completely effectual as would be desired, but are, on the contrary, yielding and distensible to an almost indefinite extent.

2. The pressure, being from the interior to the exterior, is very difficult of accomplishment.

3. The rectum will scarcely ever tolerate in its cavity the presence of any apparatus for making compression. The incessant involuntary expulsive efforts which such a foreign body provokes and, which cause so much inconvenience and suffering to the patient, unless constantly kept under the influence of extraordinary doses of opium, are almost certain to result in its forcible expulsion.

4. Even should the compressing apparatus not be expelled by the involuntary efforts of the patient, it is absolutely necessary for it to be frequently removed, to allow of defæcation.

5. In some instances, notwithstanding the presence of the compressing appliance in the rectum, the internal bleeding may still continue to go on for a considerable period without being detected, and in this way may, for the time being, prove deceptive, and precious time be lost.

Tamponnement.—Several methods have been devised for plugging the rectum, with a view of making compression, and arresting rectal hæmorrhage. For this purpose the *tampon*, *pelote*, or plug, composed of various materials, is generally employed.

A very ingenious method of making compression by means of a kind of double *tampon*, in cases of rectal hæmorrhage, consequent upon the excision of hæmorrhoids, was first suggested and successfully employed by M. Petit, a century ago.—(*Traité des Maladies Chirurgicales.* Tome ii. p. 128. Paris, 1790.)

This method of Petit was subsequently simplified and improved by M. Boyer.—(*Traité des Maladies Chriurgicales.* Tome vi. p. 556, 5th Ed. Paris, 1849.)

For the same purpose M. Desault employed with success a *tampon* composed of a square piece of linen, the centre of which was introduced into the rectum, and filled with lint; after which the corners of the same were strongly pulled against the buttocks, and secured by a bandage.—(*Ouvres Chirurgicales.* Tome ii. p. 417. Paris, 1813.

A modification of the methods of MM. Petit, Boyer, and Desault was made by our own countryman, the late and lamented

Dr. Barton, of Philadelphia. His method is as follows:—"Take a sufficient number of pledgets, made from portions of a common roller-bandage, or other piece of muslin, about two inches in width, and long enough, when loosely wound, to gain ready admittance into the rectum. Let each pledget be secured by a ligature, tied round the middle of the roll, and long enough to leave several inches of the ligature freely dependent from the anus. Introduce these pledgets, previously thoroughly oiled, one after another, into the rectum, until the lower part of that viscus is distended by the muslin, leaving the free ends of the ligatures hanging from the anus. This being done, divide the projecting ends of the ligatures, carrying one-half their number toward the right hip, and the other half toward the left; then take a large pledget or smaller roller, firmly wound, and place it between the parted ligatures, with its axis in the antero-posterior direction: lastly, gather the ligatures from the opposite sides of the anus and tie them across the external pledget with sufficient firmness to arrest the hæmorrhage."—(*American Cyclopædia of Practical Medicine and Surgery.* Art. Anus, vol. ii. p. 115. Philadelphia, 1841.)

I have made and used the following *tampon* successfully on two occasions:—Take a strip of the cotton or linen cloth about nine inches long, and about seven inches wide, sew it up in the form of a bag or purse, wet it, lubricate it with the white of eggs, and introduce it into the rectum some distance beyond the bleeding point by means of a slightly forked slender rod, and then, with the same, stuff the upper portion of the sack tightly with lint, cotton, wool, or tow; afterwards draw on the perineal portion of it, as if pulling it out, until sufficient compression is made from above downwards, to arrest the hæmorrhage. It should now be maintained firmly in this position by a proper compress and T-bandage. To remove the *tampon*, a portion of its contents must first be taken out, which can be very easily done by means of the common dressing forceps. The *tampon*, however, should not be disturbed, if possible, for several days, and measures should be adopted to keep the bowels confined for that period.

Mr. Allingham of St. Mark's Hospital, London, recommends the following method in secondary rectal hæmorrhage:—When called to see a case of this kind, always arm yourself with a full-sized bell-shaped sponge and plenty of cotton wadding: take also some persulphate of iron; or if you have not that, powdered alum. Thread a strong silk ligature through, near the apex of your cone-shaped sponge, and bring it back again, so that the apex of the sponge is held in a loop of the thread. Then wet the sponge, squeeze it dry, and powder it well, filling up the lacunæ with iron or alum. Pass the forefinger of your left hand into the bowel, and upon that as a guide, push up the sponge—apex first—by means of a metal rod, bougie, pen-holder, or a

rounded piece of wood, if you can get nothing better. Now this sponge should be carried up the bowel at least five inches, the double thread hanging outside the anus. When this is so placed, fill up the whole of the rectum below the sponge thoroughly and carefully with cotton wool, well powdered with the iron or alum. When you have completely stuffed the bowel, take hold of the silk ligature attached to the sponge, and while with one hand you pull down the sponge, with the other push up the wool. This joint action will spread out the bell-shaped sponge, like opening an umbrella, and bring the wool compactly together; if this is carefully done no bleeding can possibly take place, either internally or externally."—(*Fistula, Hæmorrhoids, and other Diseases of the Rectum*, p. 122. London, 1871.)

A pig's bladder, softened in warm water and introduced into the rectum, and filled with *charpie*, makes a good *tampon;* it was first used with success by M. Levret, and subsequently recommended and used by M. Dupuytren (*loc. cit.*) and others. The bladder may be filled with either lint, air, or water.

Upon the same principle, the late Dr. Bushe invented a very ingenious instrument for making compression in rectal bleeding (*op. cit.* p. 185).

Digital Compression.—Direct compression by means of the finger or fingers, introduced into the rectum, cannot be considered as a methodical proceeding. It constitutes, at best, but a temporary means until the operator can have recourse to a more energetic plan. The operator should introduce the first and second finger of his right hand into the rectum, and make firm pressure upon the bleeding wound, and at the same time urge the patient to make efforts to draw up the anus, or to contract the sphincters as closely as possible, and thus endeavour by these two forces to compress the bleeding vessel or vessels. It is true that digital pressure, unless it is maintained by a relay of assistants, is very inconvenient and fatiguing to the operator, but as it sometimes succeeds well, it should be resorted to. If by this proceeding the hæmorrhage is arrested, the fingers, after having remained in the bowel from one to two hours, may be carefully withdrawn, and small bags of ice applied to the anus.

5. *Styptics.*—The considerable depth at which the bleeding occurs in rectal hæmorrhage renders ineffectual, to a great extent, those hæmostatics to which recourse is had when the source of the bleeding is less deeply seated.

When the effusion proceeds from small vessels, and at numerous points, it may often be suppressed by the insufflation of a powder composed of equal parts of alum and tannin, or by powerful astringent injections. Mr. Curling, Surgeon to the London

Hospital, recommends the following as a valuable injection in obstinate rectal hæmorrhage :—

℞ Tannic acid.................... ʒj.
Alcohol............................ ʒiij.
Aquæ .... ℥j.

Fiat injectio.

6 *Cold Applications.*—These, even as adjuvants, are highly valuable, and cannot be dispensed with whilst the hæmorrhage continues. The cold applied in the form of irrigations I have already recommended and described. Small bags of ice should be contantly kept applied to the anal region as well as to the thighs.

To conclude, the patient during the whole treatment should be required to maintain strictly the recumbent or the horizontal posture, and to freely use acidulated drinks. Full doses of opium, or opium combined with the acetate of lead or gallic acid, should be administered. These are measures that should never be omitted, inasmuch as they constitute a very important part in the treatment of all traumatic hæmorrhages. In great prostration the treatment must be stimulating. A smelling-bottle must be held to the nose of the patient, and if he can swallow he must take large quantities of brandy, either alone or in union with ammonia. These remedies may be aided, if necessary, by the application of heat, friction, and sinapisms to the spine as well as to the præcordial region, measures which will generally soon restore him. When reaction begins the patient must be carefully watched, lest over-stimulation take place, followed by excessive nervous and sanguineous excitement. I would once more observe, before closing, that some cases of rectal hæmorrhage admit of no delay whatever, being quite alarming from the commencement, by rapidly exhausting the patient. Such cases require the most prompt and vigorous action, or all will be lost; hesitation or indecision would be fatal. The means already pointed out must be put into immediate force ; the rectum must be thoroughly emptied of the blood ; the anus must be dilated with the speculum, the bleeding vessel or vessels, if possible, taken up by ligature; or, if this is impossible, the actual cautery must be resorted to, or compression, astringents, and cold applications must be employed and steadily persevered in until all danger is over.—*Medical Record.*

Tobacco.

According to German statements, in case of juvenile smoking the blood corpuscles, lose their round shape and become oval and irregular at their edges; while instead of mutually attracting each other, and running together in *rouleaux* they cohere loosely,

or lie scattered on the field of the microscope. The following facts show its deleterious effect on the brain.

M. Bertillon found that 102 of the pupils attending the Polytechnic at Paris smoked, while 58 did not. Arranging the two categories in order of merit, according to the results of examinations, he found in every grade non-smokers held the higher rank, and that the smokers, compared with the non-smokers, deteriorated from their entering to their leaving the school. Facts like these induced the Minister of Public Instruction to issue to the directors of colleges and schools throughout the empire a circular forbiding tobacco to students, on the ground that the physical and intellectual development of many youths had been checked by its use. Amongst ourselves the habit is getting too common, with the results of impaired eyesight, thinning of the hair, and other symptoms of excessive draughts on nerve centres. But how is the habit to be stopped when meerschaum pipes are even given for prizes in Sunday schools?—*Medical Press and Circular.*

A new method of Nourishing Patients per Anum.

Dr. W. O. Leube, of Erlangen (*Deutches Archiv. furklin. Med.*) has made recent investigations on the nourishment of patients *per anum* with an injection-mass prepared in the following manner: With the object of introducing into the large intestine nutritive material resembling its ordinary contents, and of establishing, as far as possible, natural conditions in this part of the alimentary canal by artificially produced digestion, he has endeavoured to transfer to the large intestine a part of the digestive processes which normally take place in the small intéstine.

From 90 to 100 grammes of the pancreas of the pig or ox are carefully deprived of fat, and finely minced. Then from 150 to 300 grammes of beef are minced and grated. Both substances are then rubbed down in a mortar with some warm water, in order to form a thick soup, which is taken up into a clyster syringe, furnished with a wide opening. If it is wished to submit, at the same time, fat to digestion, from 25 to 50 grammes of this substance may be added. Starch likewise may be added. A purgative enema is to be administered one hour previous to this nutritive clyster.

His experience clinically in the use of this mode of feeding is as follows:—

1. The injected mass, when it consists of nothing more than meat and pancreatic substance, never causes any diarrhœa, but, on the other hand, generally remains in the large intestine from twelve to thirty-six hours without giving rise to a stool.

2. The patient experiences no disagreeable sensations after the injection, but rather a feeling of ease in the abdomen. In every case, he says he made out that the pulse became fuller, that there was an improvement in the general condition and spirits of the patient.

3. The clysters are not well borne at first; the least digested portion of the injected mass being returned.

4. The above-described injection-mass is superior to other substances recommended for rectal injections, through its efficiency, and the readiness with which it can be made.

Since the publication of the above paper by Dr. Leube the *Centralblatt fur Med. Wissens'ft* of July 20th contains another article from him on the same subject, in which he says, that in the warmth of summer the pancreas begins very soon to undergo decomposition, and in consequence loses its digestive power and becomes irritating to the intestine, producing rapid expulsion of the material injected. These mishaps may easily be avoided by making a glycerine extract of the pancreas. This extract is quite equal in digestive power to the fresh pancreas, and will remain good for several weeks. The following is the manner of preparing this extract in glycerine. The pancreas of a bullock (which is sufficient for three enemata) is finely chopped and rubbed with 250 *grammes* of glycerine; and to each third of this, when about to be used, are added from 120 to 150 *grammes* of finely divided meat. It is important that this mass should be injected into the intestine as soon as it is made; for if it is allowed to stand the meat swells and the operation is thereby rendered difficult.—*Medical Record.*

Extract from Official Diary of E. S. Tribe Esq., *Deputy Inspector General Indian Medical Department Nagpore Force.*

Thursday, 14*th November* 1872. "Visited the Hospitals of the 1st Regiment L. C. and of the R. W. 32nd Regiment N. I. In the former there has, I regret to say, been another case of Hydrophobia, in which the relief affoded by Chloral Hydrate was even greater than in the former case."

MEDICAL INTELLIGENCE.

(*General Orders by the Governor in Council.*)

Pay.—British Medical Staff Officers.

18th October 1872.

No. 1088 of 1872.—The following Military letter from the Right Honorable the Secretary of State for India, is published for general information:—

MILITARY. INDIA OFFICE,
No. 178. *London, the* 10*th September* 1872.

To His Excellency the Right Honorable the Governor-General of India in Council.

MY LORD,—I have received and considered in Council your Lordship's Military letter, No. 116 of the 1st July 1872, on the subject of the rate of pay admissible to British medical staff officers holding administrative appointments in India, the tenure of which is limited to five years.

G. O. G. G. No. 952, dated 22nd October 1861.
Madras G. O. C C., page 44 of 1870.
G. O. G. G. No. 1037,* dated 24th November 1871.

2. On a consideration of the orders already published on the subject quoted in the margin, I have resolved that these officers, when absent from India, shall be placed on a similar footing as regards furlough allowances as officers commanding divisions and brigades, and shall be allowed to receive, during the period of their absence on medical certificate, which is to be restricted to six months, their Indian allowances and half staff salary. During absence on private affairs, which is to be limited to four months, no pay will be issued.

3. In no case will more than one grant of leave out of India be allowed.

4. As stated in your G. O., No. 1037 of 24th November 1871, these officers will, on arrival in England, be examined by a Medical Board, and, if reported unfit for further service

*Madras G. O. G., No. 235, dated 5th December 1871.

in India, they will be removed from the Indian Establishment.

5. With regard to the inquiry contained in your despatch under reply, I have to inform you that, British medical staff officers appointed to India, subsequent to the publication of the Rules of 1868 have not the option of electing the Furlough Rules of 1854.

Inspectors-General of Hospitals.—Pension.

No. 1089 of 1872.—Under the authority of the Right Honorable the Secretary of State for India, it is hereby notified, with reference to G. G. O., No. 825* of 1869, that Inspectors-General or Deputy Inspectors-General of Hospitals, who have completed their tour of service, may at once proceed to England and qualify for higher pension on British pay, instead of remaining in India on unemployed pay for six months.

Servant's Allowance—Medical Staff Officers.

25th October 1872.

No. 1111 of 1872.—The following paragraph of a Military letter from the Right Hon'ble the Secretary of State for India, No. 166, dated the 22nd of August 1872, is published for general information :—

Para. 7. With reference to your G. O. No. 426, dated 17th April 1872, I forward, for your information, copy of correspondence with the War Office, from which you will observe that I have sanctioned the grant of servant's allowance at the rate of 1*s.* 6*d.* a day for two servants to British medical staff officers on the voyage to and from India, when such officers have the relative rank of Major-General.

Officers.—Furlough.

31st October 1872.

No. 1131 of 1872.—The following paragraphs of a Military letter from the Right Hon'ble the Secretary of State for

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* Madras G. O. G., No. 286, dated 24th August 1869.

India, No. 180, dated the 10th September 1872, are published for general information :—

Paragraph 8. Officers who may be *ordered* to return to duty for the purpose of proceeding on field service, may, if they can be spared, be allowed to avail themselves of the balance of their furlough without completing a residence of three years in India from date of last return to duty.

9. The period of the voyage to India when ordered out, and the voyage home when taking the balance of furlough, will be considered as service for pension.

CORRESPONDENCE.

To the Editor of the Madras Medical Journal.

SIR,—I certainly thought that the paragraphs quoted from my own reports, together with my assertion as to what were my views with reference to the meaning of nitric acid in water, would have sufficed to convince any ordinary person that they are not, nor have been, such as Mr. Nicholson has endeavoured to saddle upon me. But no, Mr. Nicholson has declared my views on this question incorrect; he knows better than I do myself what my opinions are, and therefore all that I have advanced on the point must be explained away. And now to my utter surprise it appears that when I approved a water which contained nitric acid, and when I did not ignore the existence of nitrates in the soil of India, I was only adopting and agreeing in the opinion of the Analysts (as if because I happened to agree with an Analyst on any point, it was not conceivable that we could both hold the same views; no, I was simply clinging to the skirts of his knowledge and experience), and when I did not condemn a water which contained nitric acid, I refrained from doing so only because I was afraid of offending an Analyst. In the name of all that is fair and courteous where has Mr. Nicholson found his grounds for this new and insulting attack upon me? What proofs has he of this moral cowardice on my part? Why in the world should I have feared to differ from the Analysts, all, be it remembered, gentlemen, and, which perhaps is less to the point, all Medical officers my juniors, the greater number of them my juniors by twelve or thirteen years, placed by Government under my direction? What mode of argument can I use with a man who tells me I do not know what my own views are, and that, when I have, apparently, been in the right, it is only beause I have been afraid to express them?

In the case of the Seetapore waters it was the Analyst, not I, who condemned them. He found nitric acid and ammonia in the waters and attributed their presence to the results of defective drainage, and I, in commenting on his report, wrote the paragraph quoted in my last letter, in which I pointed out that, as nitric acid was present in the soil in the district, its presence in the well waters could not be accepted as evidence of their artificial contamination.

In my last letter I purposely took my quotations from the fourth report only, a report which I knew was in Mr. Nicholson's possession, but as they do not suffice to convince him, here is another from my second report published in December 1867.

Writing of the Agra waters I expressed myself thus:—"All the well waters of Agra contain nitric acid in more or less quantity: but I do not believe that this is owing to any thing like sewage contamination of either the soil or of the water in the wells, for the soil itself over that district of country contains nitrates, and there is every reason for believing that under favorable circumnstances, such as the soil and climate of Agra present, nitrification may freely occur, though all matters that could in any way be brought under the denomination of sewage may be altogether absent. Still, even in Agra or in any other nitre-producing district, if we find nitric acid in what may be called abnormally large quantity in any one water, we may very reasonably suspect that it is being polluted."

Now I would ask whether that is not an expression of my own individual views, and of views utterly contrary to those with which Mr. Nicholson would saddle me? If it is not, all I can say is, that words are meaningless, that I do not know what views I have myself held, and that any assertion on my part as to what they are or have been is useless.

With regard to my opinion that "nitric acid has been well called fossil organic matter, but it is a fossil which may be of very recent formation," I adhere to it, but I have nowhere said that nitric acid is necessarily *fossil sewage,* and I have never condemned a water simply because it contained nitric acid, nor have I anywhere implied that nitric acid in a water is necessarily due to sewage contamination. But, with regard to the Murree waters (to which Mr. Nicholson refers), and the waters of others of our Himalayan Sanitaria, I have no hesitation in saying that the nitric acid in them is largely due to oxidized sewage. Any one acquainted with those Hill stations knows that destitute as they are (or were when I wrote) of public latrines, and of any provision for the removal of night soil, the whole of the night soil is cast upon the hill side, and is thence washed in every stage of putridity and decay into the ravines and water courses on the first occasion of a shower of rain.

In conclusion, and in answer to all that Mr. Nicholson has

said of my non-recognition of the natural presence of nitric acid, and chlorides in varying quantity in the soil, I adduce a precaution which, from the very first, I enjoined upon the Analysts, lest they should fall into those very errors with which Mr. Nicholson charges me. My directions ran as follows :—" Should the water be found to contain nitric acid in any notable quantity it would be well to examine the soil for it. This may be most conveniently effected by digging a shallow well in a place where the access of sewage is impossible, and examining the water which drains into it. The water thus obtained should be examined as regards the amount of chloride of sodium it contains."

I do not wish to prolong this discussion, for it is, to say the least of it, disagreeable to be charged with blundering stupidity, and ignorance, as in the passage from Mr. Nicholson's letter, which I quoted in my last, or to be insulted with such an assertion as that in the course of my public duty, I suppress my own views, and adhere to others, for fear of offending my subordinates, or any one else, and I must therefore ask you Mr. Editor, if Mr. Nicholson, after reading this letter, still persists in asserting that he has not misrepresented me in the passages just alluded to, that you will decide between us, and close the controversy by a judgment from the Editorial chair.

Yours faithfully,

D. N. MACNAMARA.

CALCUTTA,
21*st November.*

Extract from DR. MACNAMARA'S, *Fourth Report on Potable Waters of Bengal.*

" *Seetapore.*—Dr. Orton was engaged in analyzing the waters of Seetapore, during March and April; occasional slight showers fell during his visit, but the periodical rains had not set in. The water supply of the station is entirely from wells, and the supply is abundant, and naturally good.

The quantity of solid matter in solution varies from 9 to 19 grains, nitric acid and ammonia were present in the water of all the wells, but the water in the wells had been stagnant for some time previous to Dr. Orton's visit, owing to

the non-occupancy of the cantonments, and this fact may account for the very general presence of ammonia in the water. The nitric acid is present in large quantity in the water of some of the wells, and may be to a certain extent derived from sewage pollution, but I suspect it is present in the soil over the district in which Seetapore stands, and I do not therefore look upon its presence in small quantity in any of the waters as necessarily indicating artificial contamination.

Dr. Orton notices that the wells are badly constructed, needing efficient platforms and drains to prevent waste water running back into them. He also states that the general system of drainage is imperfect, but I cannot think with him that proximity to the wells of the drains which are intended to carry off rainfall can affect the drinking water unless the drains are largely put to improper uses, and unless the water remains stagnant in them for some time in the neighbourhood of the wells.

I quite agree with Dr. Orton in his opinion that wells which are used to supply drinking water should be more frequently and more thoroughly cleansed than is now practised: but I do not think it would be possible, as he suggests, to deepen a well every year. Would it not be a good plan to floor the bottom of every pucka well with perforated tiles or stones; it would then be an easy matter to clean out the soil every year without meddling with the construction of the well.

The water of well No. 2, in the Artillery lines, (the one between Nos. 1 and 2 Barracks,) differs very much from that of the other wells. It contains double the average quantity of solid constituents;—it contains a large quantity of nitrates; ammonia was largely present in it at the time of Dr. Orton's visit, and the water contains about ten times the amount of common salts natural to the waters of the station: all this makes me confident that the water is suffering artificial contamination, and I think that unless it is found to improve after the well has been thoroughly cleansed, and after every apparent possible source of pollution has been removed, its use as a potable water should be discontinued.

Dr. Orton's report is appended."

(True copy.)

D. W. MACNAMARA.

21st *November*, 1872.

Extract from Dr. Orton's *reports upon the Waters of Seetapore, dated 20th April* 1868.

"My investigations into the probable sources of contamination of the drinking water in this cantonment have led me to the conclusion, that of all causes of contamination at this place the most active originates in a faulty and imperfect system of drainage, and whenever this is the state of things, of course every well must, to a greater or less degree, suffer.

Now it will be seen from the reports of the Analysis made, that there is a trace of nitric acid and ammonia in the water obtained from every well—very little I allow, but still nitric acid and ammonia. Their presence is far too regular to be accidental, and to my mind this fact is indicative of some common source of contamination.

In their relationship to habitations, barracks, baths, cook-rooms, latrines, &c., the wells in this Cantonment all very much resemble one another. In addition they are all of recent and careful construction, though capable of still more judicious completion, for instance, they might usefully be provided with covers to keep out dust, leaves, flies, &c. &c., foreign matters of all kinds and description, which experience has taught us only too readily and easily, find admission through atmospheric, human, and other agency. Again, their stages or platforms might be beneficially furnished with drains to carry off the water which is spilt on the ground or trickles down the outside of the masonry, and which, under existing circumstances, percolates the soil round and about, and may possibly find its way back into the well.

But to return to the drainage, which appears to me to be the prime source of contamination here. Upon one occasion, when visiting the Lines after a smart thunder shower, I particularly observed that the water, though it ran off the barrack enclosures into the trenches or drains constructed for its reception, in these latter, remained stagnant, and this stagnation continued for a period of three days after the rain fall.

Now from personal observation I am satisfied that these trenches are wide, deep, and numerous enough for the purpose, and rapidly fill when occasion requires, but having filled, or rather when partly filled only, the water remains in them for several days, simply because their incline is

hardly sufficient. Of course during the heavy rain, with the impetus of a large and increased volume of water, this defect would be considerably lessened, or rather rendered less apparent, but so soon as the force was diminished or withdrawn, then and then only would the water which they contained begin to stagnate. Now these drains having a varying proximity to the wells, and especially the main or chief one, we may surmise, I think, that if those wells which are most contiguous to the main drain are also the most contaminated, whilst those which are further removed are less so, that the source of contamination may be reasonably sought in the drains, and this having been found, the degree of it may be roughly calculated by the difference in the relative proximity in each case of the one to the other.

The two worst wells I have examined in this cantonment, viz., the one marked No. 2, Royal Artillery Lines, and their second mark, No. 11 B., Cavalry Lines, are, as will be seen from the special reports, attached in much closer relationship with the main drain than any of the other wells in Cantonments. The former contains an excess of soluble salts and nitric acid, with a trace of ammonia, the latter a trace of nitric acid with an excess of ammonia, in both instances no doubt derived from bad or imperfect drainage."

(True copy.)

D. W. MACNAMARA.

21*st November*, 1872.

To the Editor of the Madras Medical Journal.

SIR,—Permit me to suggest the propriety of your ceasing to permit your valuable journal to be burdened any longer by correspondence on the subject "Nicholson *versus* Macnamara." It is not edifying, and its tone is not pleasant.

If men like to indulge in strong language let them do so by all means, but they should not be allowed to inflict it on the public.

I am, &c.,

CONSTANT READER.

TO CORRESPONDENTS.

The Inspector General, I. M. D., *Received with thanks.*
Assistant Surgeon L. C. NANNEY, „

BOOKS, &c., RECEIVED.

The Doctor, *October* 1*st.*
Medical Press and Circular, *October* 2*nd,* 9*th,* 16*th,* 23*rd.*
Medical Record, *September* 16*th, October* 1*st.*
Journal des Connaissances Médicales, *September* 30*th, October* 15*th.*

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